Table S1. Study site names, coordinates, sampling date, description, and summary of the abiotic parameters measured at each site at the time of the sampling (temperature, salinity, dissolved oxygen) or within the 6 weeks following the deployment light logger (6wpd). "Recent maintenance" indicates whether pontoon clearing or replacement were conducted by port operators (or user*) on part, some or all (3/3) of the pontoons herein studied within less than 6 months prior sampling. The main substrata upon which sampling took place upon the pontoons are indicated. Values at 0.2m were measured at close vicinity of the pontoon surface (i.e. within the canopy if any).

	Region	**Bay of Biscay**						**Western Channel**						**Eastern Channel**					
	Site	Pornichet	Piriac	Locmiquelic	Concarneau	St-Guenole	Brest	Aber Wrac'h	Roscoff	Trebeurden	St-Quay	St-Malo	Granville	Cherbourg	St-Vaast	Deauville	Le Havre	Fecamp	Dieppe
	Site code	Por	Pir	Loc	Con	StG	Bre	AbW	Ros	Tre	StQ	StM	Gra	Che	StV	Dea	LeH	Fec	Die
Variable	Precision																		
Latitude (°)		47.258239	47.382556	47.725093	47.870085	47.814038	48.379077	48.598674	48.715961	48.770317	48.647125	48.638895	48.833361	49.646233	49.587535	49.363383	49.488475	49.762631	49.927838
Longitude (°)		-2.34872	-2.543656	-3.350576	-3.914206	-4.381648	-4.489501	-4.561117	-3.966352	-3.587025	-2.8201	-2.025916	-1.599258	-1.621808	-1.264275	0.072138	0.095606	0.366706	1.081918
Number of pontoons		15	9	7	5	4	7	3	6	7	10	12	10	14	11	4	7	5	9
Number of berths		1150	830	607	345	40	650	300	625	700	1030	1200	1000	1550	750	700	1040	800	410
Sampling date (2022)		May, 31st	June, 1st	May, 30th	May, 18th	May, 19th	June, 2nd	May, 20th	May, 9th & June, 9th	May, 10th	May, 11th	May, 17th	May, 13th	May, 25th	May, 12th	May, 16th	May, 24th	June, 16th	May, 23th
Weather at the time		Sunny	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny	Sun + Rain	Sunny	Sunny	Rainy	Sunny	Sunny	Sunny	Sunny	Rainy
Pontons size (m)	As min-max	127-163	146-204	161-200	36-100	30-40	118-153	105-154	180-204	188-212	173-206	150-206	180-200	150-240	120-173	145-145	100-210	140-140	80-90
Distance to the closest entry of the sampled pontoons (m)	as min-max	177-380	75-140	65-188	5-100	105-273	132-310	40-100	90-170	82-230	134-410	123-330	30-180	132-370	175-385	1015-1075	250-490	490-620	1120-1240
Recent maintenance		-	Yes (1/3)	-	-	Yes (2/3)	-	Yes (3/3)	-	-	-	-	-	-	Yes (1 plot)*	-	-	-	-
Maintenance score		0	1	0	0	2	0	3	0	0	0	0	0	0	0.13	0	0	0	0
Configuration	Number of entrances	1	1	1	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1
	Step	-	Yes	-	-	-	-	-	-	Yes	-	-	Yes	-	Yes	Yes	-	-	-
	Lock	-	-	-	-	-	-	-	-	-	-	-	Yes	-	Yes	Yes	-	-	-
	Water mixing score	1	0.6	1	2	1	1	1	2	0.6	1	1	0.3	1	0.3	0.3	1	1	1
Substratum of sampled pontoons	Plastic	Yes	Yes	-	Yes	-	Yes	Yes	Yes	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Fiber	Yes	-	-	-	-	-	-	-	Yes	-	Yes	-	-	-	-	-	-	-
	Aluminium	-	Yes	Yes	-	Yes	-	-	-	Yes	-	-	-	-	-	-	-	-	-
Insite activities	Leisure	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Activities at vicinity	Fishing	-	-	-	Yes	Yes	-	y	Yes	Yes	Yes	-	Yes	Yes	Yes	-	-	Yes	Yes
	Other marinas	-	-	-	Yes	-	Yes	-	-	-	-	Yes	-	Yes	-	Yes	Yes	Yes	Yes
	Aquaculture	Yes	Yes	Yes	-	Yes	Yes	Yes	-	-	-	Yes	Yes	Yes	Yes	-	-	-	-
	Offshore windfarms	Yes	Yes	-	-	-	-	-	-	-	-	-	-	-	Yes	-	-	-	-
	Regional ferry	-	-	-	Yes	-	-	-	-	-	-	Yes	Yes	-	-	-	-	-	-
	International ferry	-	-	-	-	-	-	-	Yes	-	-	-	-	-	-	-	-	-	-
	International commercial port	-	-	Yes	-	-	Yes	-	-	-	-	-	-	Yes	-	-	Yes	-	-
	Navy	-	-	-	-	-	Yes	-	-	-	-	-	-	Yes	-	-	-	-	-
	International connection score	0	0	2	0	0	2	0	1	0	0	1	0	2	0	0	2	0	1
Temperature (°C)	0.2 m	16.7 (0.4)	17.1 (0.5)	16.1 (0.3)	16.9 (0.3)	16.9 (0.5)	16.4 (0.6)	15.2 (0.2)	14.8 (0.6)	15.0 (0.2)	14.7 (0.1)	15.9 (0.4)	16.8 (0.7)	14.2 (0.1)	15.8 (0.5)	17.8 (0.2)	15.5 (0.5)	18.1 (0.5)	15.3 (0.1)
Direct measurement	2 m	16.3 (0.3)	16.9 (0.3)	15.8 (0.2)	16.7 (0.1)	16.4 (0.4)	15.9 (0.3)	15.0 (0.3)	14.6 (0.6)	14.8 (0.1)	14.6 (0.1)	15.4 (0.2)	16.2 (0.3)	13.8 (0.3)	14.7 (0.4)	17.4 (0.2)	15.3 (0.2)	17.9 (0.5)	15.2 (0.1)
Salinity	0.2 m	34.8 (0.1)	35.6 (0.1)	33.5 (0.5)	34.2 (0.2)	36 (0.2)	34.8 (0.1)	35.9 (0.3)	35.2 (0.3)	35.0 (0.1)	35.1 (0.2)	35.1 (0.2)	35.1 (0.1)	33.3 (0.4)	33.0 (0.4)	30.3 (0.2)	30.7 (0.1)	28.0 (1.0)	18.3 (1.1)
	2 m	34.7 (0.1)	35.8 (0.5)	33.7 (0.5)	34.5 (0.5)	36.2 (0.1)	34.9 (0.1)	36.0 (0.1)	35.3 (0.2)	34.9 (0.2)	35.2 (0.1)	35.1 (0.1)	34.8 (0.7)	34.4 (0.4)	33.4 (0.2)	30.5 (0.1)	30.7 (0.0)	30.9 (0.9)	29.5 (1.1)
Dissolved Oxygen	0.2 m		9.0 (0.1)	8.7 (0.1)	8.8 (0.1)	8.9 (1.0)	9.2 (0.1)	9.6 (0.2)	12.4 (1.7)	12.6 (0.2)	11.0 (0.1)	9.7 (0.3)	9.7 (0.0)lc	9.7 (0.2)	11.8 (0.6)	10.2 (0.3)	8.7 (0.1)	9.3 (0.1)	8.6 (0.1)
(mg L-1)	2 m	9.4 (0.4)	9.1 (0.2)	8.7 (0.1)	9.0 (0.2)	8.8 (0.8)	9.3 (0.1)	9.6 (0.2)	12.5 (1.7)	12.6 (0.1)	11.1 (0.0)	10.0 (0.2)	9.8 (0.0)lc	10 (0.2)	11.3 (0.5)	10.0 (0.3)	8.7 (0.0)	10.2 (1.8)	8.8 (0.2)
%D.O	0.2 m	122 (7.9)	115.9 (2.1)	107.8 (1.6)	112.1 (2.3)	114.2 (13.9)	115.7 (1.7)	119.1 (2.6)	152.2 (20.1)	154.3 (2.8)	135.0 (1.3)	120.8 (3.3)	122.3 (0.4)lc	116.5 (2.4)	145.4 (6.8)	128.5 (3.1)	105.1 (1.2)	116.3 (1.6)	95.7 (1.8)
	2 m	118.4 (5)	116.4 (3.3)	108.4 (1.7)	114.4 (2.6)	111.7 (10.7)	115.6 (1.6)	119.5 (2.8)	152.8 (19.8)	154.6 (1.8)	135.3 (0.6)	123.7 (2.5)	123.0 (0.3)lc	118.9 (2.4)	136.7 (6.3)	125.9 (4.0)	105.2 (0.7)	129.8 (23.9)	105.3 (1.6)
Light penetration,	Secchi (m)	1.3 (0.2)	1.9 (0.2)lc	2.5 (0.3)	2.8 (0.5)	-	5.7 (1.2)	6.3 (0.8)lc	4.7 (1.2)	4.8 (0.1)lc	4.9 (0.6)	4.3 (0.4)lc	1.7 (0.1)lc	4.9 (0.4)	-	3.2 (0.0)	2 (0.2)	1.8 (0.2)	1.6 (0.1)lc
	Light[6wpd] (lx), 0.5 m	-	1983.7 (5484.9)	1465.8 (6429.3)	-	1463.3 (6436.7)	1273.4 (5196.5)	2150.6 (6972.6)	1104 (3226.4)	-	-	1318.5 (5544.7)	434.8 (978.2)	378.3 (1014.4)	137.5 (358.7)	544.9 (1467.8)	-	1539.9 (6375.7)	251.6 (2511.3)

Table S2. Detailed analyses of covariance for differences in temperature (°C), salinity and dissolved oxygen (expressed as mg L-1 or percentage) among sites, position in the water column, orientation, and distance to the port entry, with associated component of variation expressed as a percentage (C.V.). Mind the degree of freedom varying with the number of missing values.

		Temperature			Salinity				Dissolved oxygen			% D.O.				Turbidity (Secchi disc)		
Source	df	Pseudo-F	P_{MC}	C.V.	Pseudo-F	P_{MC}	C.V.	df	Pseudo-F	P_{MC}	C.V.	Pseudo-F	P_{MC}	C.V.	df	Pseudo-F	P_{MC}	C.V.
√Distance to entry = Di	1	0.66	0.418	0.0	32.35	<0.001	53.2	1	0.20	0.655	0.0	0.60	0.442	0.0	1.0	1.25	0.293	0.8
Orientation = Or	1	1.02	0.327	0.0	4.36	0.054	1.0	1	1.15	0.304	1.8	1.05	0.317	0.0	1	1.71	0.204	0.5
Position = Ps	2	27.43	<0.001	1.4	3.44	0.048	1.5	2	1.19	0.322	0.7	0.54	0.614	0.0				
Site = Si	17	169.45	<0.001	53.3	9.13	<0.001	30.3	17	176.09	<0.001	54.2	100.59	<0.001	99.4	15	718.73	<0.001	51.9
Di × Ps	2	0.20	0.827	0.0	11.91	<0.001	6.1	2	0.50	0.616	0.0	1.85	0.173	0.1				
Di × Si	17	132.23	<0.001	39.8	31.74	<0.001	6.9	16	26.11	<0.001	37.9	26.26	<0.001	0.4	13	60.55	<0.001	43.9
Ps × Si	34	10.27	<0.001	0.9	207.89	<0.001	0.1	34	2.17	<0.001	0.8	3.49	<0.001	0.0				
Di × Ps × Si	34	4.42	<0.001	3.1	1.22	0.180	0.5	32	4.13	<0.001	3.0	4.30	<0.001	0.0				
Res	863			1.6			0.3	821			1.5			0.0	671			2.9
Pairwise (Si × Ps)																		
All positions equal in:		LeH			Pir, Loc, StG, AbW, Ros, Tre, StQ, StM, Gra, LeH				Pir, Loc, StG, AbW, Ros, StQ, LeH			Pir, Loc, StG, Bre, AbW, Ros, StQ, LeH						
0.2 m can ≠ 0.2 m out in:		StQ, Gra			Die				StM, Che, Dea, Fec, Die			StM, Che, Dea, Fec, Die						
0.2 m ≠ 2 m in:		Por, Pir, Loc, Con, Bre, AbW, Ros, Tre, StM, Gra, Che, StV, Dea, Fec, Die			Por, Con, Bre, Che, StV, Dea, Fec, Die				Por, Con, Bre, AbW, Tre, Che, Dea, Fec, Die			Por, Con, Tre, StV, Dea, Fec, Die						

Table S3. Detailed PERMANOVA tests for differences in the biomass and composition of seaweeds, suspension feeders and grazers, among levels of the main factors (height, region, site, pontoon and station), and associated component of variation expressed as a percentage (C.V.). PERMDISP results are summarized for the factor region: Bay of Biscay (BB), Western Channel (WC) and Eastern Channel (EC).

		Macroalgae						Suspension feeders						Grazers (Patella spp. mostly)		
		Total biomass			Composition			Total biomass			Composition			Total biomass		
Transformation		Square-Root			None			None			None			None		
PERMDISP	$df_{1,2}$	Pseudo-F	P_{perm}		Pseudo-F	P_{perm}		Pseudo-F	P_{perm}		Pseudo-F	P_{perm}		Pseudo-F	P_{perm}	
Region	2,321	2.886	0.117		17.737	< 0.001		147.31	< 0.001		16.358	< 0.001		43.661	< 0.001	
					WC ≠ (BB = EC)			BB ≠ (WC = EC)			BB ≠ (WC = EC)			EC ≠ (WC = BB)		
PERMANOVA																
Source	df	Pseudo-F	$P_{(MC)}$	C.V.	Pseudo-F	$P_{(MC)}$	C.V.	Pseudo-F	$P_{(MC)}$	C.V.	Pseudo-F	$P_{(MC)}$	C.V.	Pseudo-F	$P_{(MC)}$	C.V.
Fouling height = He	1	0.90	0.352	0.0	1.22	0.284	0.3	5.11	0.063	7.4	1.80	0.076	1.1	0.70	0.418	0.0
Region = Re	2	1.84	0.203	5.9	2.34	0.007	8.0	6.88	0.007	32.3	3.03	0.002	11.8	1.35	0.295	3.2
Site(Re) = Si	15	4.42	< 0.001	31.1	5.38	< 0.001	28.8	5.64	< 0.001	26.6	4.25	< 0.001	26.2	5.52	< 0.001	44.3
Pontoon(Si(Re)) = Po	36	4.37	< 0.001	20.2	2.16	< 0.001	10.4	3.89	< 0.001	12.6	2.65	< 0.001	14.8	5.24	< 0.001	23.4
Station(Po(Si(Re)))	108	0.87	0.785	0.0	1.03	0.298	0.8	1.58	0.005	4.8	1.37	< 0.001	7.2	1.29	0.070	3.7
Residuals	161			42.8			51.6			16.3			39.0			25.3
Total	323															

Table S4. Summary of DISTLM outputs for relationship between available environmental (geographic, biotic) variables and the biomass and composition of seaweeds, suspension feeders and grazers. Marginal tests are summarized by Pseudo-*F* (with [m]marginally significant at α = 0.07, *P < 0.05, **P < 0.01, ***P < 0.001) and explained variation (Prop. In %), while sequential tests are summarized for the best solution model by the rank of each variable, its AICc and total R^2.

		Macroalgae						Suspension feeders						Grazers		
		Total biomass			Composition			Total biomass			Composition			Total biomass		
Transformation		Square-Root			None			None			None			None		
Variable	Scale	Pseudo-*F*	Prop.	Rank	Pseudo-*F*	Prop.	Rank	Pseudo-*F*	Prop.	Rank	Pseudo-*F*	Prop.	Rank	Pseudo-*F*	Prop.	Rank
Mixing score	Site	14.4***	4.3	4	8.68***	2.6	6	22.49***	6.5	4	6.95***	2.1	6	0.99	0.3	4
Number of berths	Site	0.00	0.0		13.5***	4.0	4	0.18	0.1	5	3.43**	1.1		1.97	0.6	
International connexion score	Site	0.06	0.0	5	14.22***	4.2	3	0.51	0.2		11.32***	3.4	4	1.22	0.4	6
Latitude	Pontoon	0.40	0.1	3	11.15***	3.3	2	153.83***	32.3	1	21.56***	6.3	1	25.81***	7.4	1
Longitude	Pontoon	8.08**	2.4		7.03***	2.1	7	16.78***	5.0	3	8.3***	2.5	3	21.06***	6.1	5
Distance to entry (√)	Pontoon	23.98***	6.9	1	17.03***	5.0	1	14.95***	4.4		8.97***	2.7	7	5.11*	1.6	3
Orientation	Station	5.72*	1.7		2.75**	0.8		0.09	0.0		0.78	0.2		0.03	0.0	
Recent maintenance	Station	7.62**	2.3	2	4.18***	1.3	5	9.74**	2.9	2	14.2***	4.2	2	1.09	0.3	
Fouling height	Station	4.36*	1.3		5.34***	1.6		37.7***	10.5	6	8.61***	2.6		4.01*	1.2	2
Grazer biomass (Log)	Station	3.75[m]	1.2		3.06**	0.9	8	2.74	0.8		6.73***	2.0	5			
Best solution AICc				1528.2			2562.3			4666.9			2571.4			2005.0
Best solution R^2				0.207			0.226			0.458			0.226			0.156

Table S5. Summary of DISTLM outputs for relationship between available environmental (geographic, biotic) variables and the richness and composition of fish and sessile taxa. Marginal tests are summarized by Pseudo-*F* (with [m]marginally significant at α = 0.07, *P < 0.05, **P < 0.01, ***P < 0.001) and explained variation (Prop. In %), while sequential tests are summarized for the best solution model by the rank of each variable, its AICc and total R^2.

		Fish						Sessile taxa					
		Richness			Composition			Richness			Composition		
Transformation		None			Ln (X+1)			None			None		
Variable	Scale	Pseudo-*F*	Prop.	Rank	Pseudo-*F*	Prop.	Rank	Pseudo-*F*	Prop.	Rank	Pseudo-*F*	Prop.	Rank
Mixing score	Site	4.44*	2.7		3.63*	2.2	5	27.03***	7.7		9.10***	2.7	9
Number of berths	Site	1.90	1.2		2.88*	1.8		3.70[m]	1.1		8.40***	2.5	8
International connexion score	Site	0.01	0.0		1.04	0.6	4	0.04	0.0		9.09***	2.7	3
Latitude	Pontoon	7.8**	4.6		2.35[m]	1.5		10.13**	3.1	4	17.39***	5.1	2
Longitude	Pontoon	11.39**	6.6		5.9**	3.6	6	99.09***	23.5	3	18.46***	5.4	4
Distance to entry (√)	Pontoon	12.92**	7.5	2	5.37**	3.3	3	109.07***	25.3	1	21.96***	6.4	1
Orientation	Station							11.39***	3.4	6	2.67***	0.8	
Recent maintenance	Station	0.06	0.0		0.43	0.3		2.21	0.7		9.99***	3.0	7
Fouling height	Station							17***	5.0		10.85***	3.3	11
Grazer biomass (Log)	Station							5.95*	1.8	8	8.29***	2.5	6
Suspension feeders biomass (Log)	Station	3.8[m]	2.3		1.42	0.9							
All kelp biomass (Log)	Station	10.15**	6.0		8.09***	4.8		91.13***	22.1	2	20.11***	5.9	10
Native kelp biomass (Log)	Station	13.49**	7.8	1	12.1***	7.0	1	48.74***	13.1	7	8.11***	2.5	12
Non-indigenous kelp biomass (Log)	Station	5.61*	3.4		5.52***	3.3	2	41.01***	11.3	5	17.49***	5.2	5
Best solution AICc				-22.8			1079.4			983.1			2473.7
Best solution R^2				0.115			0.158			0.427			0.324

Table S6. Complete list of sessile and fish taxa identified during this study, their known biogeographic status in the study region (I, C, NIS and U indigenous, cryptogenic, nonindigenous or unassigned, respectively) and their occurrence (●) within each study site. ○ indicate casual observations made along the pontoons out of the sampled surface.

Taxon	Status	Por	Pir	Loc	Con	StG	Bre	AbW	Ros	Tre	StQ	StM	Gra	Che	StV	Dea	LeH	Fec	Die
CHROMISTA																			
Ochrophyta																			
Desmarestia viridis (O.F.Müller) J.V.Lamouroux, 1813	I				●		●		●	●	●	●			●		●		
Dictyotaceae Lamouroux ex Dumortier, 1822	U				●			●	●	●	●						●		
Dictyosiphon Greville, 1830	U															●			
Colpomenia peregrina Sauvageau, 1927	NIS		●	●	●	●	●	●	●	●	●	●	●						
Scytosiphon lomentaria (Lyngbye) Link, 1833	C	●	●					●				●		●					
Ectocarpales Bessey, 1907	U	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Himanthalia elongata (Linnaeus) S.F.Gray, 1821	I					●						●							
Gongolaria nodicaulis (Withering) Molinari & Guiry, 2020	I									●									
Sargassum muticum (Yendo) Fensholt, 1955	NIS	●			●				●	●		●							
Undaria pinnatifida (Harvey) Suringar, 1873	NIS		●			●	●	●	●	●	●	●	●	●	●	●	●		
Laminaria hyperborea (Gunnerus) Foslie, 1884	I				●	●	●	●	●	●	●	●		○					
Laminaria ochroleuca Bachelot de la Pylaie, 1824	I								●										
Laminaria digitata (Hudson) J.V.Lamouroux, 1813	I					●			○										
Saccharina latissima (Linnaeus) C.E.Lane, C.Mayes, Druehl & G.W.Saunders, 2006	I				●	●			●	●									
Cutleria multifida (Turner) Greville, 1830	I		●				●			●	●	●							
Saccorhiza polyschides (Lightfoot) Batters, 1902	I	●	●		●	●		●	●		●								
Brown filamentous unidentified	U												●		●				
Brown ramified unidentified	U		●																
Brown crust unidentified	U													●				●	
PLANTAE																			
Chlorophyta																			
Bryopsis J.V.Lamouroux, 1809	U	●	●		●		●	●	●	●	●	●	●		●		●	●	●
Codium Stackhouse, 1797	U											●							
Cladophora Kützing, 1843	U		●		●		●	●		●	●	●	●	●	●	●	●		●
Blidingia Kylin, 1947	U							●											
Ulva (lamina) Linnaeus, 1753	U	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ulva (tubular) Linnaeus, 1754	U	●	●	●			●		●									●	●
Umbraulva E.H.Bae & I.K.Lee, 2001	U								●										
Green filamentous unidentified	U																		●
Green crust unidentified	U																●		
Rhodophyta																			
Porphyra C.Agardh, 1824	U		●			●													
Acrochaetiaceae Melchior, 1954	U						●							●					
Bonnemaisonia hamifera Hariot, 1891	NIS											●							
Aglaothamnion Feldmann-Mazoyer, 1941	U									●									
Callithamnion Lyngbye, 1819	U	●		●															
Antithamnionella ternifolia (or *A. spirographidis*) A. Lyle, 1922	NIS	●	●	●		●			●	●	●	●	●		●		●	●	●

Ceramium Roth, 1797	U	●	●	●	●	●	●	●	●	●	●	●	●	●			●	●			
Ceramium #2 Roth, 1797	U	●							●									●			
Ceramium #3 Roth, 1797	U															●			●		
Pterothamnion Nägeli, 1855	U		●		●	●		●	●	●	●	●	●	●	●	●	●				
Pterothamnion #2 Nägeli, 1855	U		●																		
Dasyaceae Kützing, 1843	U	●	●	●		●								●	●			●			
Apoglossum ruscifolium (Turner) J.Agardh, 1898	I					●															
Cryptopleura ramosa (Hudson) L.Newton, 1931	I					●		●	●		●	●									
Heterosiphonia plumosa (J.Ellis) Batters, 1902	I								●	●											
Hypoglossum hypoglossoides (Stackhouse) Collins & Hervey, 1917	I			●									●	●							
Nitophyllum punctatum (Stackhouse) Greville, 1830	I		●		●	●		●	●	●	●	●	●								
Delesseriaceae Bory, 1828	U							●													
Chondria C.Agardh, 1817	U							●													
Laurencia J.V.Lamouroux, 1813	U											●									
Osmundea pinnatifida (Hudson) Stackhouse, 1809	I					●			●	●		●									
Osmundea hybrida (A.P.de Candolle) K.W.Nam, 1994	I					●			●												
Polysiphonia Greville, 1823[a]	U	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●				
Symphyocladiella dendroidea (Montagne) D.Bustamante, B.Y.Won, S.C.Lindstrom & T.O.Cho, 2019	NIS		●		●	●					●	●	●				●				
Griffithsia C.Agardh, 1817	U											●									
Wrangeliaceae J.Agardh, 1851	U									●							●				
Jania J.V.Lamouroux, 1812	U											●									
Corallinales erected P.C. Silva & H.W. Johansen, 1986	U					●			●	●	●	●			●						
Caulacanthus okamurae Yamada, 1933	NIS			●																	
Calliblepharis jubata (Goodenough & Woodward) Kützing, 1843	I							●	●	●											
Rhodophyllis Kützing, 1847	U							●	●	●											
Dilsea carnosa (Schmidel) Kuntze, 1898	I						●	●	●	●											
Furcellaria lumbricalis (Hudson) J.V.Lamouroux, 1813	I					●															
Chondracanthus teedei (Mertens ex Roth) Kützing, 1843	I							●													
Chondracanthus acicularis (Roth) Fredericq, 1993	I											●									
Chondrus crispus Stackhouse, 1797	I				●	●	●	●			●		●					●			
Callophyllis laciniata (Hudson) Kützing, 1843	I					●			●												
Kallymenia reniformis (Turner) J.Agardh, 1842	I					●			●												
Gymnogongrus crenulatus (Turner) J.Agardh, 1851	I					●	●	●	●			●	●								
Mastocarpus stellatus (Stackhouse) Guiry, 1984	I													●				●			
Phyllophora pseudoceranoïdes (S.G.Gmelin) Newroth & A.R.A.Taylor ex P.S.Dixon & L.M.Irvine, 1977	I																	●			
Polyides rotunda (Hudson) Gaillon, 1828	I												●								
Gracilaria multipartita (Clemente) Harvey, 1846	I										●	●									
Grateloupia filicina (J.V.Lamouroux) C.Agardh	I							●													
Grateloupia turuturu Yamada, 1941	NIS		●	●		●	●	●	●	●		●	●	●							
Pachymeniopsis lanceolata (K.Okamura) Y.Yamada ex S.Kawabata, 1954	NIS		●																		
Plocamium J.V.Lamouroux, 1813	U									●											
Champia Desvaux, 1809	U									●											

Chylocladia verticillata (Lightfoot) Bliding, 1928	I									●								
Gastroclonium ovatum (Hudson) Papenfuss, 1944	I					●			●				●					
Lomentaria articulata (Hudson) Lyngbye, 1819	I					●		●	●									
Lomentaria orcadensis (Harvey) Collins, 1937	I							●	●									
Lomentaria clavellosa (Lightfoot ex Turner) Gaillon, 1828	I					●		●			●	●						
Rhodymenia Greville, 1830	U					●				●		●						
Corallinales crust P.C. Silva & H.W. Johansen, 1986	U							●	●	●		●						●
Non-calcareous crust	U							●										
Red fleshy mound unidentified	U											●						
ANIMALIA																		
Annelida																		
Sabella spallanzanii (Gmelin, 1791)	I								●	●	●						●	
Sabella pavonina Savigny, 1822	I												●				●	
Sabellidae Latreille, 1825	U											●						
Ficopomatus Southern, 1921	NIS																	●
Salmacina Claparède, 1870	U									●								
Serpulidae Rafinesque, 1815	U	●	●	●	●	●	●		●		●		●	●	●	●	●	●
Spirorbinae Chamberlin, 1919	U					●												
Arthropoda																		
Amphibalanus Pitombo, 2004	U			●	●					●		●						●
Balanus Costa, 1778	U	●	●	●		●	●		●			●		●		●	●	●
Perforatus perforatus (Bruguière, 1789)	I						●		●	●	●	●		●	●		●	
Chthamalus Ranzani, 1817	I																	●
Austrominius modestus (Darwin, 1854)	NIS		●	●										●				●
Bryozoa																		
Bugula neritina (Linnaeus, 1758)	NIS				●		●	●		●		●			●		●	
Bugulina Gray, 1848[b]	U	●	●				●	●	●	●		●	●	●	●		●	
Tricellaria inopinata d'Hondt & Occhipinti Ambrogi, 1985	NIS		●				●	●			●	●	●	●	●		●	
Candidae d'Orbigny, 1851	U		●	●	●	●	●	●	●	●		●	●		●		●	
Electra pilosa (Linnaeus, 1767)	I	●					●	●	●				●					●
Conopeum reticulum (Linnaeus, 1767)	I															●	●	
Membranipora membranacea (Linnaeus, 1767)	I					●					●							
Watersipora subatra (Ortmann, 1890)	NIS		●		●	●	●	●	●	●	●	●	●	●	●		●	
Bryozoa encrusting	U		●		●	●	●	●					●	●	●	●	●	●
Alcyonidioides mytili (Dalyell, 1848)	I			●	●												●	
Amathia Lamouroux, 1812	U				●												●	
Crisia Lamouroux, 1812	U							●		●								
Crisidia cornuta (Linnaeus, 1758)	I							●										
Chordata																		
Clavelina lepadiformis (Müller, 1776)	I		●		●	●	●	●	●	●	●	●	●		●		●	
Didemnum (maculosum) Savigny, 1816	U								●									
Didemnum spp Savigny, 1816[c]	NIS	●	●		●		●	●	●	●	●	●	●				●	
Diplosoma listerianum (Milne Edwards, 1841)	NIS		●		●	●	●	●	●	●	●	●		●	●		●	
Lissoclinum Verrill, 1871	U				●		●		●	●		●						

Aplidium Savigny, 1816	U		●		●	●	●	●	●	●	●		●	●	●	●	●					
Morchellium argus (Milne Edwards, 1841)	I								●	●												
Polyclinidae unidentified Milne Edwards, 1841	U		●																			
Ascidia mentula Müller, 1776	I				●		●										●					
Ascidiella aspersa (Müller, 1776)	I				●	●	●	●	●	●	●	●	●		●	●	●					
Phallusia mammillata (Cuvier, 1815)	C						●	●	●	●	●											
Ciona intestinalis (Linnaeus, 1767)	I		●		●	●	●		●		●	●	●		●	●	●					
Ciona Fleming, 1822[d]	U				●	●			●			●	●									
Corella eumyota Traustedt, 1882	NIS		●		●	●		●	●	●	●		●		●		●					
Perophora japonica Oka, 1927	NIS		●		●	●	●	●	●	●	●	●	●		●	●	●					
Molgulidae Lacaze-Duthiers, 1877	U		●		●	●			●						●		●			●		
Asterocarpa humilis (Heller, 1878)	NIS		●		●	●		●	●	●	●	●	●									
Botrylloides Milne Edwards, 1841	U	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
Botryllus schlosseri (Pallas, 1766)	I	●	●		●	●	●	●	●	●		●	●	●	●	●	●	●				
Styela clava Herdman, 1881	NIS	●	●		●		●			●	●		●		●		●					
Styelidae Herdman, 1881	U												●									
Botryllidae unidentified Verrill, 1871	U															●						
Anguilla anguilla (Linnaeus, 1758)	I	●		●											●		●					
Atherina presbyter Cuvier, 1829	I			●				●			●											
Ctenolabrus rupestris (Linnaeus, 1758)	I											●										
Labrus bergylta Ascanius, 1767	I					●																
Dicentrarchus labrax (Linnaeus, 1758)	I			●	●							●					●					
Spondyliosoma cantharus (Linnaeus, 1758)	I										●											
Pollachius pollachius (Linnaeus, 1758)	I				●	●		●	●	●	●	●			●							
Motella Cuvier, 1829	I							●				●										
Lepadogaster lepadogaster (Bonnaterre, 1788)	I		●																			
Gobius paganellus Linnaeus, 1758	I														●							
Pomatoschistus flavescens (Fabricius, 1779)	I					●	●	●														
Chelon labrosus (Risso, 1827)	I		●	●	●	●		●	●	●			●	●	●	●	●	●	●			
Ammodytes tobianus Linnaeus, 1758	I										●											
Gasterosteus aculeatus Linnaeus, 1758	I											●										
Nerophis lumbriciformis (Jenyns, 1835)	I	●	●	●		●		●				●										
Cnidaria																						
Anemonia viridis (Forsskål, 1775)	I		●						●	●			●									
Urticina felina (Linnaeus, 1761)	I						●											●				
Diadumene lineata (Verrill, 1869)	NIS		●	●	●																	
Metridium senile (Linnaeus, 1761)	NIS	●	●		●		●	●	●					●			●					
Metridium de Blainville, 1824	U								●													
Actinothoe sphyrodeta (Gosse, 1858)	I		●		●		●		●		●	●	●	●			●					
Cylista elegans (Dalyell, 1848)	I			●			●		●						●		●					
Anthozoa unidentified[e]	U		●				●	●				●	●									
Corynactis viridis Allman, 1846	I						●		●	●												
Alcyonium Linnaeus, 1758	I							●														
Bougainvillia Lesson, 1830	U	●	●	●	●	●		●	●	●	●	●	●		●		●					

Coryne eximia Allman, 1859	C									●	●				●			●				
Hydractinia Van Beneden, 1844	U														●							
Ectopleura L. Agassiz, 1862	U		●	●	●		●			●							●	●	●			
Filifera unidentified Kühn, 1913	U					●																
Clytia Lamouroux, 1812	U	●			●																	
Obelia geniculata (Linnaeus, 1758)	C				●		●															
Campanulariidae Johnston, 1836	U	●		●	●		●	●	●	●	●				●				●			
Plumularia setacea (Linnaeus, 1758)	C				●	●		●	●	●	●	●	●						●			
Sertularella Gray, 1848	U			●	●	●			●		●	●				●		●		●	●	
Hydrallmania Hincks, 1868	U					●		●				●			●			●				
Hydrozoa unidentified	U							●	●													
Echinodermata																						
Aslia lefevrei (Barrois, 1882)	I				●						●											
Psammechinus miliaris (P.L.S. Müller, 1771)	I				●																	
Mollusca																						
Mytilus Linnaeus, 1758[f]	U	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●			
Magallana gigas (Thunberg, 1793)	NIS		●						●				●									
Ostrea edulis Linnaeus, 1758	I				●		●				●											
Anomiidae Rafinesque, 1815	U			●	●				●		●											
Mimachlamys varia (Linnaeus, 1758)	I		●		●								●	●								
Haliotis tuberculata Linnaeus, 1758	I				●		●															
Crepidula fornicata (Linnaeus, 1758)	NIS		●				●									●						
Patella Linnaeus, 1758	I	●	●		●	●	●	●	●	●	●	●			●	●			●	●		
Porifera																						
Clathrina Gray, 1867	U				●				●				●									
Leucosolenia Bowerbank, 1864	U		●		●	●		●	●	●	●	●	●			●	●	●				
Sycon Risso, 1827	U		●		●	●	●	●	●	●	●	●	●			●		●				
Haliclona Grant, 1841	U	●	●			●	●	●	●		●	●	●	●	●	●	●	●	●			
Amphilectus fucorum (Esper, 1794)	I								●													
Microcionidae Carter, 1875	U		●			●	●	●				●				●						
Myxilla Schmidt, 1862	U				●	●	●		●						●							
Polymastiida Morrow & Cárdenas, 2015	U				●																	
Halichondria bowerbanki Burton, 1930	I		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●				
Halichondria panicea (Pallas, 1766)	I						●	●														
Hymeniacidon perlevis (Montagu, 1814)	I						●		●	●	●											
Oscarella lobularis (Schmidt, 1862)	I									●		●										
Porifera unidentified	U			●																		

[a]: comprising diverse species of *Polysiphonia* (e.g. the NIS *Polysiphonia morrowii* Harvey, 1857) but also nowadays revised genus such as *Leptosiphonia* (e.g. *L. brodiei* (Dillwyn) A.M.Savoie & G.W.Saunders, 2019) or *Melanothamnus* (e.g. the NIS *M . harveyi* (Bailey) Díaz-Tapia & Maggs, 2017); [b]: comprising diverse native taxa such as *Bugulina fulva* (Ryland, 1960), *B. simplex* (Hincks, 1886) but also NIS such as *B. turbinata* (Alder, 1857); [c]: including both *Didemnum vexillum* Kott, 2002 and more recently described *D. pseudovexillum* Turon & Viard, 2020; [d]: including the NIS *Ciona robusta* Hoshino & Tokioka, 1967 recognized in Concarneau; [e]: including the NIS *Diadumene cincta* Stephenson, 1925. Comprising at least *Mytilus edulis* Linnaeus, 1758 and *Mytilus galloprovincialis* Lamarck, 1819 but also most certainly hybrids given the studied habitat (Simon et al. 2019; Touchard et al. 2023). Status were updated according to Massé et al. (2023)

Table S7. Detailed PERMANOVA tests for differences in fish richness, among levels of the main factors (kelp biomass, region, site, pontoon and station) and their interactions. Three tests are presented, considering either the biomass all kelp, native kelp or nonindigenous kelp as covariate. For each term (C.V.), the component of variation is expressed as a percentage. PERMDISP results and pairwise tests are summarized for the factor region: Bay of Biscay (BB), Western Channel (WC) and Eastern Channel (EC).

Fish richness										
PERMDISP	df1,2	Pseudo-F	Pperm							
Source: Region	2,159	4.48	0.031	EC ≠ (WC = BB)						
PERMANOVA										
Covariate kelp:		All kelp			Native kelp only			Nonindigenous kelp only		
Source	df	Pseudo-F	P(MC)	C.V.	Pseudo-F	P(MC)	C.V.	Pseudo-F	P(MC)	C.V.
Kelp biomass = Ke	1	3.14	0.085	2.7	4.13	0.055	3.6	2.00	0.210	1.3
Region = Re	2	1.27	0.317	1.3	0.73	0.510	0.0	1.77	0.207	4.2
Site(Re) = Si	15	3.51	**0.002**	18.4	3.02	**0.003**	20.9	4.16	**<0.001**	17.6
Ke × Re	2	3.38	**0.039**	13.0	0.34	0.561	0.0	5.58	**0.007**	21.8
Pontoon(Si(Re)) = Po	36	0.98	0.508	0.0	1.37	0.114	7.3	0.88	0.652	0.0
Ke × Si(Re)	10	0.60	0.798	0.0	1.31	0.271	11.3	0.68	0.723	0.0
Ke × Po(Si(Re))	23	0.42	0.990	0.0	0.69	0.757	0.0	0.55	0.937	0.0
Residuals	72			64.6			57.0			55.1
Total	161									

Table S8. Detailed PERMANOVA tests for differences in fish composition, among levels of the main factors (kelp biomass, region, site, pontoon and station) and their interactions. Three tests are presented, considering either the biomass all kelp, native kelp or nonindigenous kelp as covariate. For each term (C.V.), the component of variation is expressed as a percentage. PERMDISP results and pairwise tests are summarized for the factor region: Bay of Biscay (BB), Western Channel (WC) and Eastern Channel (EC).

Fish composition										
PERMDISP	df1,2	Pseudo-F	Pperm							
Source: Region	2,159	9.343	**0.007**	EC ≠ (WC = BB)						
PERMANOVA										
Covariate kelp:		All kelp			Native kelp only			Nonindigenous kelp only		
Source	df	Pseudo-F	P(MC)	C.V.	Pseudo-F	P(MC)	C.V.	Pseudo-F	P(MC)	C.V.
Kelp biomass = Ke	1	2.64	**0.046**	2.1	3.90	**0.015**	8.2	1.89	0.144	1.5
Region = Re	2	1.58	0.157	2.6	1.76	0.125	7.9	1.74	0.123	4.0
Site(Re) = Si	15	2.99	**<0.001**	17.4	2.55	**<0.001**	16.7	3.26	**<0.001**	20.3
Ke × Re	2	2.18	**0.038**	6.1	1.73	0.153	6.6	3.31	**0.005**	14.4
Pontoon(Si(Re)) = Po	36	1.60	**0.001**	9.6	1.82	**<0.001**	15.5	1.44	**0.007**	7.9
Ke × Si(Re)	10	0.92	0.601	0.0	1.03	0.420	3.7	0.91	0.617	0.0
Ke × Po(Si(Re))	23	1.10	0.288	16.4	1.18	0.224	12.2	1.00	0.490	0.0
Residuals	72			45.7			29.3			51.9
Total	161									

Table S9. Detailed PERMANOVA tests for differences in sessile taxa richness, among levels of the main factors (kelp biomass, region, site, pontoon and station) and their interactions. Three tests are presented, considering either the biomass all kelp, native kelp or nonindigenous kelp as covariate. For each term (C.V.), the component of variation is expressed as a percentage. PERMDISP results and pairwise tests are summarized for the factor region: Bay of Biscay (BB), Western Channel (WC) and Eastern Channel (EC).

Sessile taxa richness										
	df1,2	Pseudo-F	Pperm							
Source: Region	2,321	19.438	**< 0.001**	BB ≠ (WC = EC)						
Covariate kelp:		All kelp			Native kelp only			Nonindigenous kelp only		
Source	df	Pseudo-F	P(MC)	C.V.	Pseudo-F	P(MC)	C.V.	Pseudo-F	P(MC)	C.V.
Kelp biomass = Ke	1	13.91	**0.002**	17.5	6.82	**0.020**	9.3	4.63	0.063	7.5
Region = Re	2	2.01	0.163	5.9	1.30	0.308	2.2	2.26	0.140	9.3
Site(Re) = Si	15	5.57	**<0.001**	28.1	6.90	**<0.001**	37.2	6.92	**<0.001**	35.8
Ke × Re	2	6.90	**0.002**	7.5	6.23	**0.015**	4.0	6.83	**0.002**	10.0
Pontoon(Si(Re)) = Po	36	3.93	**<0.001**	13.6	4.82	**<0.001**	14.9	3.81	**0.000**	13.3
Ke × Si(Re)	10	1.23	0.283	0.8	3.55	**0.002**	6.3	1.49	0.149	1.6
Station(Po(Si(Re)))	108	1.53	**0.013**	4.8	1.29	0.081	2.6	1.52	**0.011**	4.8
Ke × Po(Si(Re))	23	1.29	0.193	4.6	1.76	0.063	6.1	0.98	0.489	0.0
Residuals	126			17.3			17.5			17.8
Total	323									

Table S10. Detailed PERMANOVA tests for differences in sessile taxa composition, among levels of the main factors (kelp biomass, region, site, pontoon and station) and their interactions. Three tests are presented, considering either the biomass all kelp, native kelp or nonindigenous kelp as covariate. For each term (C.V.), the component of variation is expressed as a percentage. PERMDISP results and pairwise tests are summarized for the factor region: Bay of Biscay (BB), Western Channel (WC) and Eastern Channel (EC).

Sessile taxa composition										
PERMDISP	df1,2	Pseudo-F	Pperm							
Source: Region	2,321	3.321	**0.044**	(WC ≠ BB) = (WC ≠^{m}EC)						
PERMANOVA										
Covariate kelp:		All kelp			Native kelp only			Nonindigenous kelp only		
Source	df	Pseudo-F	P(MC)	C.V.	Pseudo-F	P(MC)	C.V.	Pseudo-F	P(MC)	C.V.
Kelp biomass = Ke	1	3.02	**0.001**	3.5	1.13	0.350	0.2	2.17	**0.014**	2.4
Region = Re	2	2.08	**0.002**	8.1	2.15	**0.002**	8.9	2.02	**0.001**	7.8
Site(Re) = Si	15	7.14	**<0.001**	37.9	7.48	**<0.001**	39.2	7.44	**<0.001**	37.7
Ke × Re	2	2.07	**0.001**	1.6	1.51	0.102	0.4	2.57	**<0.001**	2.9
Pontoon(Si(Re)) = Po	36	3.14	**<0.001**	12.6	3.20	**<0.001**	12.4	3.09	**<0.001**	11.8
Ke × Si(Re)	10	1.69	**<0.001**	3.7	1.43	**0.008**	1.7	1.67	**<0.001**	3.1
Station(Po(Si(Re)))	108	1.10	**0.018**	1.6	1.11	**0.017**	1.6	1.12	**0.009**	1.8
Ke × Po(Si(Re))	23	1.03	0.374	0.7	1.45	**<0.001**	6.1	1.16	**0.049**	3.7
Residuals	126			30.2			29.3			28.8
Total	323									

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