SUPPLEMENTARY MATERIAL

Suppl. Table 1: ID, name and geographic coordinates of the reefs and coastal segments studied. For coastal segments the coordinates are of the middle point along the segment (see Figure 1).

ID	NAME	LONG	LAT
1	**ChioL1**	12.49	45.23
2	**ChioS1**	12.38	45.21
3	**ChioS3**	12.42	45.19
4	**ChioL2**	12.52	45.17
5	**ChioS2**	12.41	45.20
6	**ChioL3**	12.56	45.29
7	**TR12-Nicola**	13.22	45.51
8	**TR13**	13.25	45.53
9	**TR14-Misto**	13.31	45.57
10	**TR3-Spari**	13.32	45.55
11	**TR4**	13.36	45.60
12	**SanPietro**	13.34	45.60
13	**Menegh**	13.41	45.63
14	**Meneghel**	13.35	45.62
15	**Strucolo**	13.15	45.49
16	**Gubana**	13.16	45.49
17	**Colomba**	13.12	45.46
18	**Colomba2**	13.12	45.46
19	**Cerniotta**	12.87	45.40
20	**Lastre**	12.49	45.34
21	**Pivetta**	12.54	45.33
22	**Tartaruga**	12.63	45.35
23	**Amerigo**	13.34	45.61
24	**Corvine**	13.33	45.60
25	**NordAlti**	13.25	45.60
26	**Palo Largo**	13.35	45.59
27	**TR2-Pinnacoli**	13.25	45.60
28	**Salient**	13.25	45.59
29	**Saratoga**	13.24	45.55
30	**Dorsale**	13.29	45.56
31	**Aldebaran**	13.27	45.54
32	**La Longa**	13.25	45.54
33	**Bardelli**	13.24	45.50
34	**Delta Po sud**	12.50	44.88
35	**Delta Po nord**	12.42	45.05
36	**Chioggia - Sile**	12.39	45.35
37	**Sile - Caorle**	12.75	45.54
38	**Caorle - Lignano**	13.05	45.64
39	**Lignano - Isonzo**	13.37	45.69

40	**Isonzo - Trieste**	13.65	45.73
41	**Trieste - Savudrija**	13.65	45.55
42	**Savudrija - Limski kanal**	13.55	45.31
43	**Limski kanal - Pula**	13.74	44.96

Suppl. Table 2: Number of particles released for every season along the different coastal segments

Coastal segment	Number of particles
34	30360
35	56304
36	78384
37	57408
38	43056
39	62376
40	59064
41	85560
42	71208
43	112608

Suppl. Table 3: Individual MC for full graph analysis in the four seasons: only the top five sites according to total MC_i are shown, separately for reefs and for coastal segments. Source is the outgoing centrality, Sink is the ingoing centrality, Total is the sum of the Source and Sink centralities. PPD are indicated as 3H= 3 hours, 1D= 1 day, 3D= 3 days, 1W= 1 week, 2W= 2 weeks, 1M= 1 month

	Winter				Spring				Summer				Autumn			
	Site	***Source***	***Sink***	***Total***	***Site***	***Source***	***Sink***	***Total***	***Site***	***Source***	***Sink***	***Total***	***Site***	***Source***	***Sink***	***Total***
3H																
Reefs	***24***	0.037	0.020	0.056	***24***	0.003	0.036	0.040	***24***	0.035	0.011	0.045	***24***	0.032	0.026	0.058
	12	0.024	0.027	0.051	***23***	0.029	0.002	0.031	***23***	0.002	0.030	0.031	***12***	0.032	0.023	0.054
	23	0.003	0.022	0.024	***15***	0.006	0.019	0.025	***15***	0.024	0.006	0.030	***15***	0.014	0.010	0.024
	15	0.013	0.008	0.021	***16***	0.019	0.006	0.025	***16***	0.006	0.024	0.030	***16***	0.010	0.014	0.024
	16	0.008	0.013	0.021	***12***	0.013	0.008	0.022	***12***	0.017	0.013	0.029	***23***	0.004	0.020	0.023
Coastal segments	***37***	0.005	0.005	0.010	***37***	0.002	0.002	0.004	***37***	0.003	0.003	0.006	***37***	0.005	0.005	0.010
	36	0.004	0.007	0.010	***36***	0.002	0.001	0.004	***36***	0.002	0.004	0.005	***36***	0.004	0.006	0.010

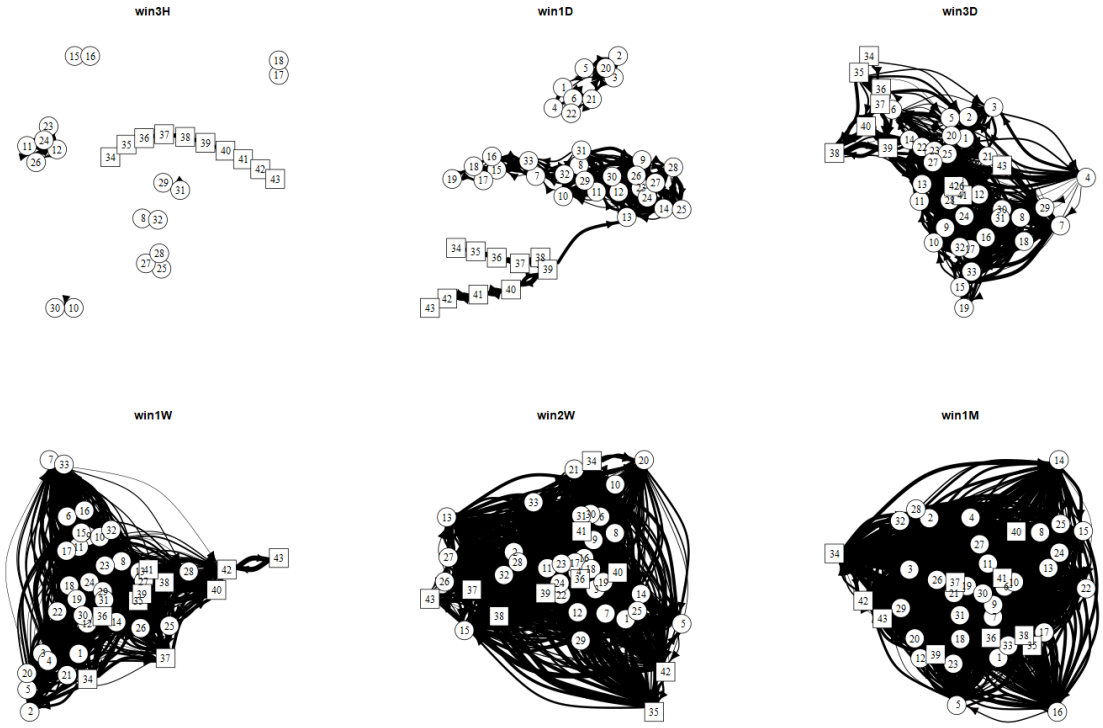
	38	0.006	0.004	0.009	***38***	0.001	0.002	0.003	***38***	0.003	0.002	0.005	***38***	0.005	0.004	0.010
	39	0.005	0.004	0.009	***41***	0.000	0.003	0.003	***39***	0.002	0.003	0.005	***39***	0.004	0.005	0.009
	35	0.001	0.007	0.008	***39***	0.002	0.001	0.003	***41***	0.004	0.000	0.004	***40***	0.006	0.002	0.008
	Winter				**Spring**				**Summer**				**Autumn**			
1D																
Reefs	***24***	0.057	0.036	0.093	***23***	0.015	0.038	0.053	***24***	0.043	0.026	0.069	***24***	0.053	0.047	0.100
	12	0.052	0.037	0.089	***24***	0.040	0.012	0.052	***23***	0.017	0.042	0.059	***12***	0.057	0.042	0.099
	23	0.029	0.047	0.077	***12***	0.023	0.014	0.037	***12***	0.034	0.020	0.055	***23***	0.030	0.053	0.083
	11	0.032	0.021	0.053	***31***	0.012	0.020	0.031	***31***	0.018	0.024	0.042	***11***	0.041	0.020	0.061
	27	0.014	0.037	0.051	***14***	0.004	0.025	0.029	***32***	0.022	0.016	0.039	***27***	0.013	0.038	0.052
Coastal segments	***37***	0.036	0.049	0.085	***37***	0.015	0.012	0.027	***37***	0.020	0.021	0.042	***38***	0.040	0.039	0.080
	38	0.045	0.040	0.084	***38***	0.015	0.009	0.025	***38***	0.023	0.017	0.039	***37***	0.033	0.044	0.077
	36	0.015	0.056	0.071	***36***	0.004	0.018	0.022	***36***	0.008	0.027	0.035	***39***	0.047	0.022	0.068
	39	0.051	0.020	0.071	***39***	0.013	0.007	0.020	***39***	0.022	0.009	0.032	***36***	0.014	0.048	0.063
	40	0.031	0.014	0.045	***40***	0.008	0.006	0.014	***40***	0.016	0.006	0.022	***40***	0.031	0.015	0.046
	Winter				**Spring**				**Summer**				**Autumn**			
3D																
Reefs	***12***	0.017	0.012	0.029	***9***	0.036	0.027	0.063	***9***	0.028	0.017	0.046	***12***	0.016	0.012	0.027
	23	0.015	0.013	0.028	***32***	0.033	0.019	0.052	***32***	0.027	0.017	0.044	***23***	0.013	0.014	0.027
	14	0.013	0.014	0.027	***31***	0.029	0.023	0.052	***31***	0.022	0.020	0.042	***26***	0.020	0.007	0.027
	31	0.016	0.011	0.027	***12***	0.020	0.030	0.050	***8***	0.025	0.016	0.041	***24***	0.014	0.011	0.026
	24	0.017	0.010	0.027	***23***	0.018	0.030	0.048	***10***	0.024	0.016	0.039	***11***	0.017	0.008	0.025
Coastal segments	***38***	0.027	0.044	0.071	***37***	0.039	0.038	0.078	***38***	0.034	0.046	0.080	***38***	0.020	0.045	0.065
	39	0.044	0.023	0.067	***38***	0.040	0.037	0.077	***37***	0.031	0.042	0.073	***39***	0.039	0.025	0.064
	37	0.025	0.038	0.063	***39***	0.038	0.029	0.067	***39***	0.047	0.026	0.073	***37***	0.018	0.030	0.048
	36	0.013	0.043	0.056	***36***	0.009	0.053	0.063	***36***	0.011	0.048	0.060	***40***	0.028	0.016	0.043
	40	0.028	0.013	0.041	***40***	0.026	0.023	0.049	***42***	0.036	0.013	0.049	***36***	0.011	0.030	0.042
	Winter				**Spring**				**Summer**				**Autumn**			
1W																
Reefs	***14***	0.019	0.017	0.036	***13***	0.011	0.022	0.033	***13***	0.016	0.019	0.035	***14***	0.019	0.016	0.035
	13	0.018	0.017	0.035	***23***	0.013	0.019	0.032	***32***	0.021	0.013	0.033	***29***	0.010	0.015	0.025
	10	0.020	0.011	0.030	***12***	0.014	0.017	0.031	***14***	0.012	0.021	0.033	***13***	0.019	0.013	0.032
	23	0.016	0.014	0.030	***14***	0.009	0.021	0.030	***8***	0.021	0.012	0.033	***27***	0.011	0.013	0.024
	24	0.018	0.011	0.029	***10***	0.020	0.009	0.030	***9***	0.018	0.014	0.032	***25***	0.012	0.013	0.024
Coastal segments	***36***	0.029	0.056	0.085	***37***	0.039	0.034	0.073	***39***	0.043	0.043	0.087	***35***	0.007	0.056	0.063
	39	0.037	0.046	0.083	***36***	0.014	0.056	0.070	***38***	0.025	0.059	0.085	***38***	0.018	0.055	0.073
	38	0.020	0.056	0.077	***38***	0.028	0.039	0.067	***42***	0.060	0.020	0.080	***39***	0.033	0.049	0.081
	37	0.038	0.035	0.073	***39***	0.030	0.036	0.066	***41***	0.037	0.038	0.075	***36***	0.023	0.046	0.069
	35	0.006	0.067	0.073	***41***	0.027	0.039	0.065	***37***	0.035	0.039	0.074	***41***	0.037	0.043	0.080
	Winter				**Spring**				**Summer**				**Autumn**			
2W																
Reefs	***13***	0.022	0.017	0.039	***13***	0.022	0.031	0.053	***13***	0.020	0.024	0.044	***13***	0.019	0.010	0.029

	14	0.020	0.014	0.035	**14**	0.019	0.023	0.042	**14**	0.018	0.019	0.037	**14**	0.017	0.009	0.026
	23	0.019	0.010	0.029	**23**	0.021	0.017	0.038	**23**	0.019	0.013	0.032	**23**	0.017	0.006	0.023
	12	0.020	0.008	0.028	**12**	0.022	0.015	0.038	**10**	0.022	0.009	0.030	**25**	0.014	0.008	0.022
	24	0.020	0.008	0.028	**8**	0.024	0.012	0.037	**32**	0.017	0.013	0.030	**27**	0.013	0.008	0.021
Coastal segments	**41**	0.053	0.048	0.101	**41**	0.049	0.078	0.127	**41**	0.054	0.061	0.115	**41**	0.048	0.037	0.084
	40	0.038	0.054	0.092	**40**	0.046	0.067	0.113	**42**	0.076	0.035	0.111	**40**	0.030	0.046	0.076
	35	0.007	0.085	0.092	**42**	0.060	0.052	0.112	**40**	0.043	0.061	0.104	**42**	0.062	0.013	0.075
	42	0.066	0.025	0.091	**36**	0.025	0.081	0.105	**39**	0.030	0.059	0.089	**39**	0.021	0.052	0.073
	36	0.026	0.065	0.090	**39**	0.035	0.058	0.093	**36**	0.025	0.063	0.089	**36**	0.016	0.056	0.072
	Winter				**Spring**				**Summer**				**Autumn**			
								1M								
Reefs	**13**	0.018	0.015	0.033	**13**	0.024	0.027	0.051	**13**	0.019	0.023	0.043	**13**	0.016	0.010	0.026
	14	0.019	0.010	0.029	**14**	0.018	0.025	0.042	**14**	0.019	0.017	0.035	**14**	0.016	0.008	0.024
	23	0.018	0.007	0.025	**23**	0.012	0.027	0.039	**2**	0.022	0.009	0.032	**23**	0.016	0.006	0.022
	12	0.018	0.007	0.024	**12**	0.011	0.028	0.039	**23**	0.018	0.013	0.031	**27**	0.014	0.008	0.022
	11	0.018	0.006	0.024	**24**	0.010	0.029	0.039	**12**	0.018	0.011	0.029	**25**	0.014	0.008	0.022
Coastal segments	**41**	0.060	0.045	0.105	**41**	0.091	0.054	0.145	**41**	0.055	0.067	0.121	**36**	0.012	0.085	0.097
	36	0.016	0.077	0.094	**36**	0.104	0.026	0.130	**36**	0.024	0.087	0.111	**41**	0.057	0.032	0.089
	40	0.030	0.061	0.091	**40**	0.092	0.037	0.130	**40**	0.033	0.076	0.109	**35**	0.006	0.080	0.086
	35	0.008	0.082	0.089	**42**	0.070	0.055	0.125	**42**	0.058	0.045	0.103	**40**	0.027	0.049	0.075
	42	0.055	0.034	0.088	**39**	0.065	0.037	0.101	**35**	0.015	0.083	0.098	**42**	0.055	0.015	0.070

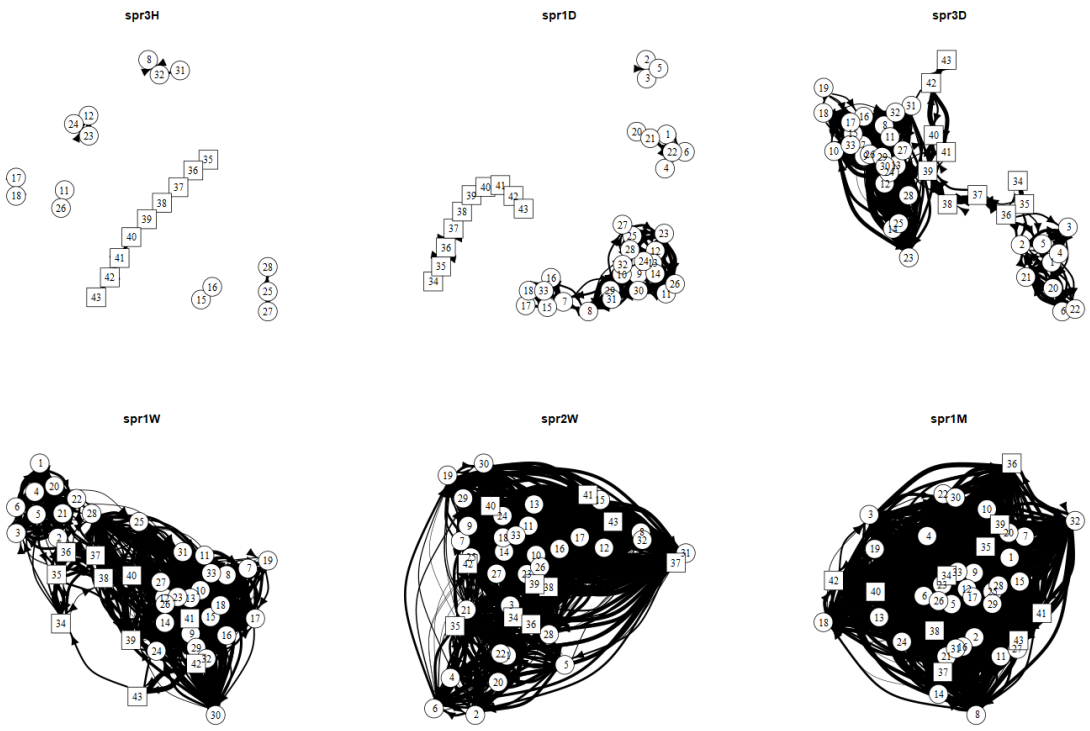
Suppl. Table 4: Pearson's product-moment correlation between β_w *and* AbsConn *for different seasons and time intervals; between* AbsConn *for different seasons and time intervals and geographic distances between locations; between* β_w *and geographic distances between locations. In red non-significative correlations (p-value > 0.05).*

Pearson's product-moment correlation	β_w		***Distance***	
	estimate	*p-value*	*estimate*	*p-value*
win3H	-0.08	0.062	-0.11	0.009
win1D	-0.18	0.000	-0.25	0.000
win3D	-0.33	0.000	-0.49	0.000
win1W	-0.37	0.000	-0.65	0.000
win2W	-0.37	0.000	-0.73	0.000
win1M	-0.26	0.000	-0.70	0.000
spr3H	-0.08	0.073	-0.11	0.014
spr1D	-0.17	0.000	-0.21	0.000
spr3D	-0.31	0.000	-0.46	0.000
spr1W	-0.32	0.000	-0.63	0.000
spr2W	-0.28	0.000	-0.70	0.000
spr1M	-0.21	0.000	-0.76	0.000

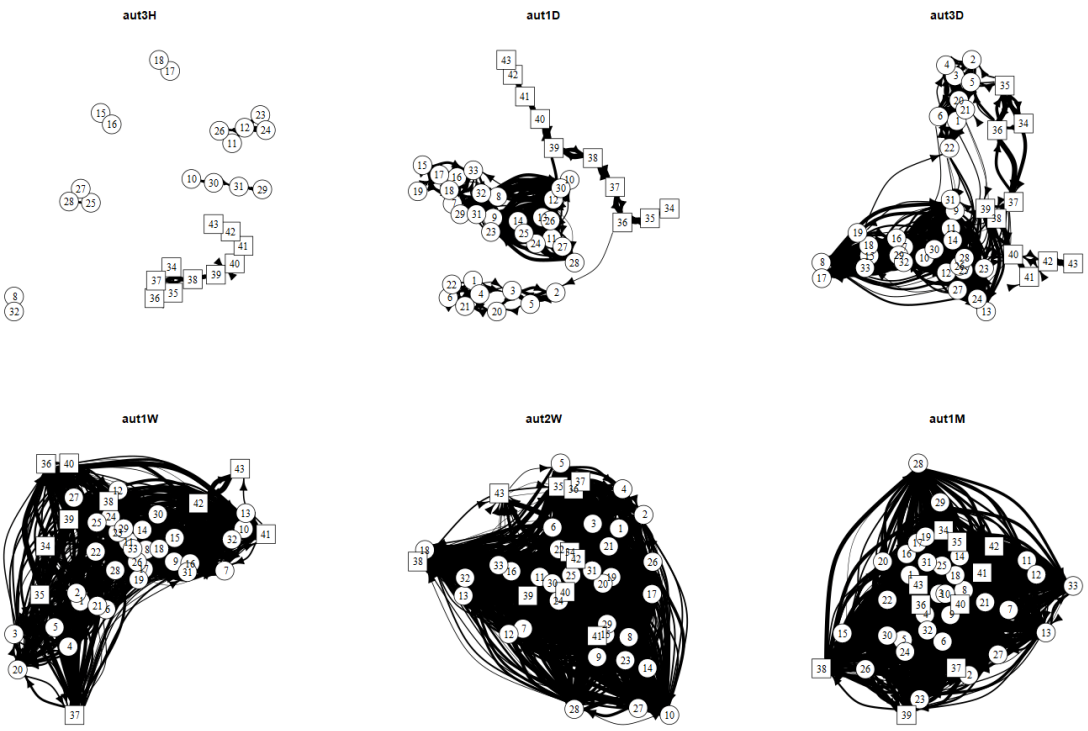
sum3H	-0.08	0.078	-0.11	0.013
sum1D	-0.17	0.000	-0.22	0.000
sum3D	-0.33	0.000	-0.46	0.000
sum1W	-0.33	0.000	-0.62	0.000
sum2W	-0.29	0.000	-0.66	0.000
sum1M	-0.22	0.000	-0.65	0.000
aut3H	-0.08	0.065	-0.11	0.012
aut1D	-0.18	0.000	-0.25	0.000
aut3D	-0.31	0.000	-0.50	0.000
aut1W	-0.38	0.000	-0.63	0.000
aut2W	-0.37	0.000	-0.63	0.000
aut1M	-0.26	0.000	-0.01	0.737
β_w			0.32	0.000



Suppl. Fig. 1: Connectivity graphs for winter at different PPDs. The width of the edges is proportional to the logarithm of the number of particles flowing in one direction between two nodes. Isolated nodes have been omitted. Titles above the graphs indicate the PPD, from top-left to bottom right: 3H= 3 hours, 1D= 1 day, 3D= 3 days, 1W= 1 week, 2W= 2 weeks, 1M= 32 days. Circles= biogenic reefs, squares= coastal segments. See Suppl. Table 1 for the correspondence between numbers and names of the outcrops and of the coastal segments. See Fig. 1 for the geographic position of the reefs and of the coastal segments.



Suppl. Fig 2: Connectivity graphs for spring at different PPDs. The width of the edges is proportional to the logarithm of the number of particles flowing in one direction between two nodes. Isolated nodes have been omitted. Titles above the graphs indicate the PPD, from top-left to bottom right: 3H= 3 hours, 1D= 1 day, 3D= 3 days, 1W= 1 week, 2W= 2 weeks, 1M= 32 days. Circles= biogenic reefs, squares= coastal segments. See Suppl. Table 1 for the correspondence between numbers and names of the outcrops and of the coastal segments. See Fig. 1 for the geographic position of the reefs and of the coastal segments.



Suppl. Fig. 3: Connectivity graphs for autumn at different PPDs. The width of the edges is proportional to the logarithm of the number of particles flowing in one direction between two nodes. Isolated nodes have been omitted. Titles above the graphs indicate the PPD, from top-left to bottom right: 3H= 3 hours, 1D= 1 day, 3D= 3 days, 1W= 1 week, 2W= 2 weeks, 1M= 32 days. Circles= biogenic reefs, squares= coastal segments. See Suppl. Table 1 for the correspondence between numbers and names of the outcrops and of the coastal segments. See Fig. 1 for the geographic position of the reefs and of the coastal segments.