Supporting information for article:

David et al., 2022. Connectivity modelling informs metapopulation structure and conservation priorities for a reef-building species. ***Diversity and Distribution Journal***

List of the supplemental figures:

Figure S1. Connectivity matrices of *Sabelaria alveolata* reefs across the French Atlantic and Channel coasts.

Figure S2. Changes in network metrics under different connectivity thresholds.

Figure S3. Network maps with linkage probabilities.

Figure S4. Changes in network metrics following scenarios of sequential node deletion.

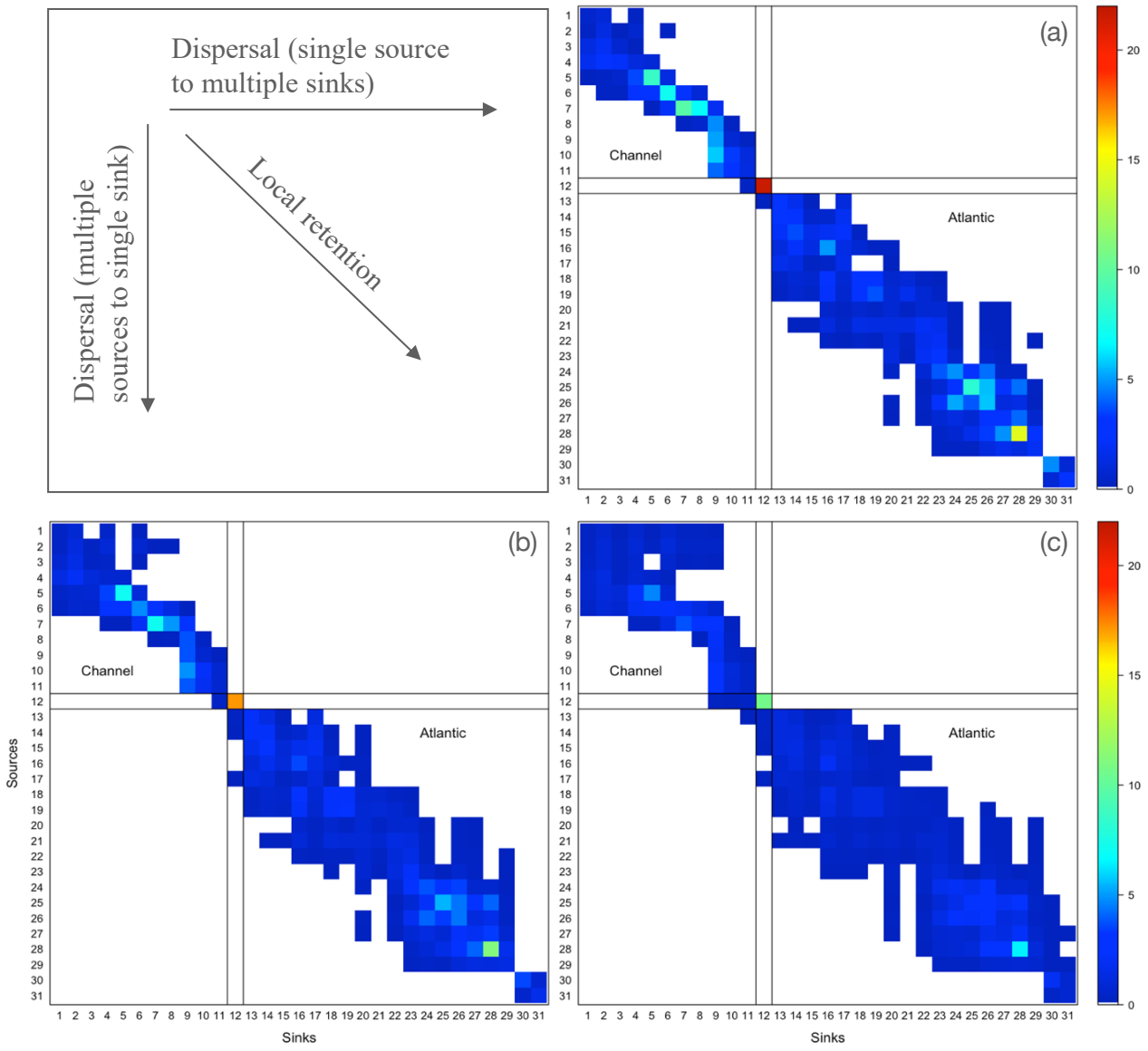

Figure S1. Connectivity matrices of *S. alveolata* reefs across the French Atlantic and Channel coasts after: (a) 3-wk; (b) 4-wk; and (c) 6-wk planktonic larval durations. Matrices present mean estimates over six months (April to September) and five years (2012 to 2016). The colour bar indicates percentage connectivity flux by row (i.e., from a single source to multiple sink zones). A minimum threshold of 0.01% was applied, below which, connectivity was considered zero (and shown in white). Vertical and horizontal lines separate the Channel (top-left quadrant) from the Atlantic coast (bottom-right quadrant) regions and highlight the Bay of Douarnenez (Zone 12) located at the crossroad between the two regions.

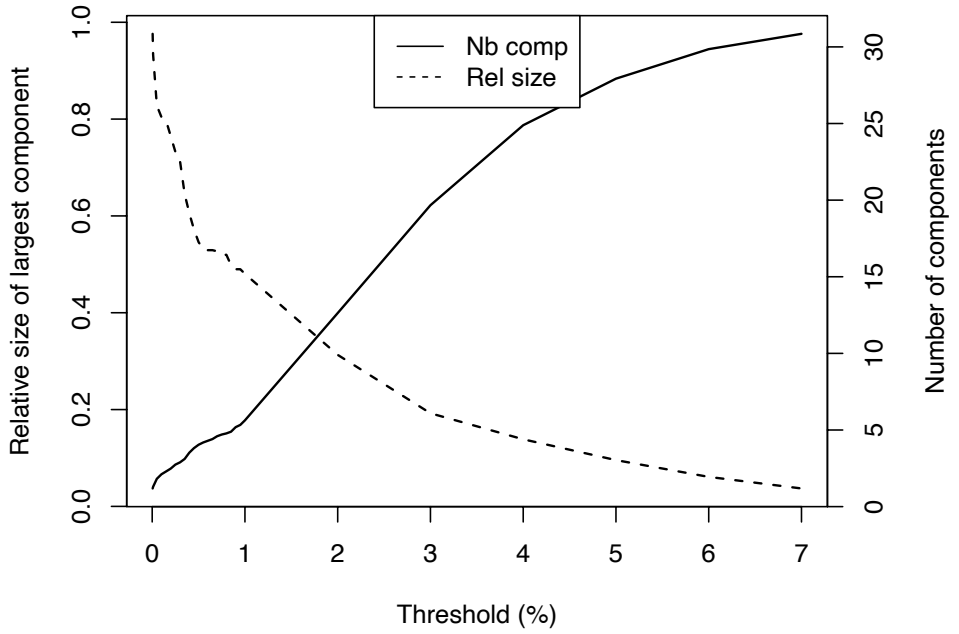

Figure S2. Changes in network metrics number of components (Nb comp), and relative size of the largest component (Rel size), under different connectivity thresholds (%). Connectivity threshold was gradually increased from 0 % (no threshold applied, all zones connected into one components) up to 7% (fragmented network, all zones are disconnected). The lines represent average values of the two metrics for the simulated spawning events (Apr-Sep, 2012-2016).

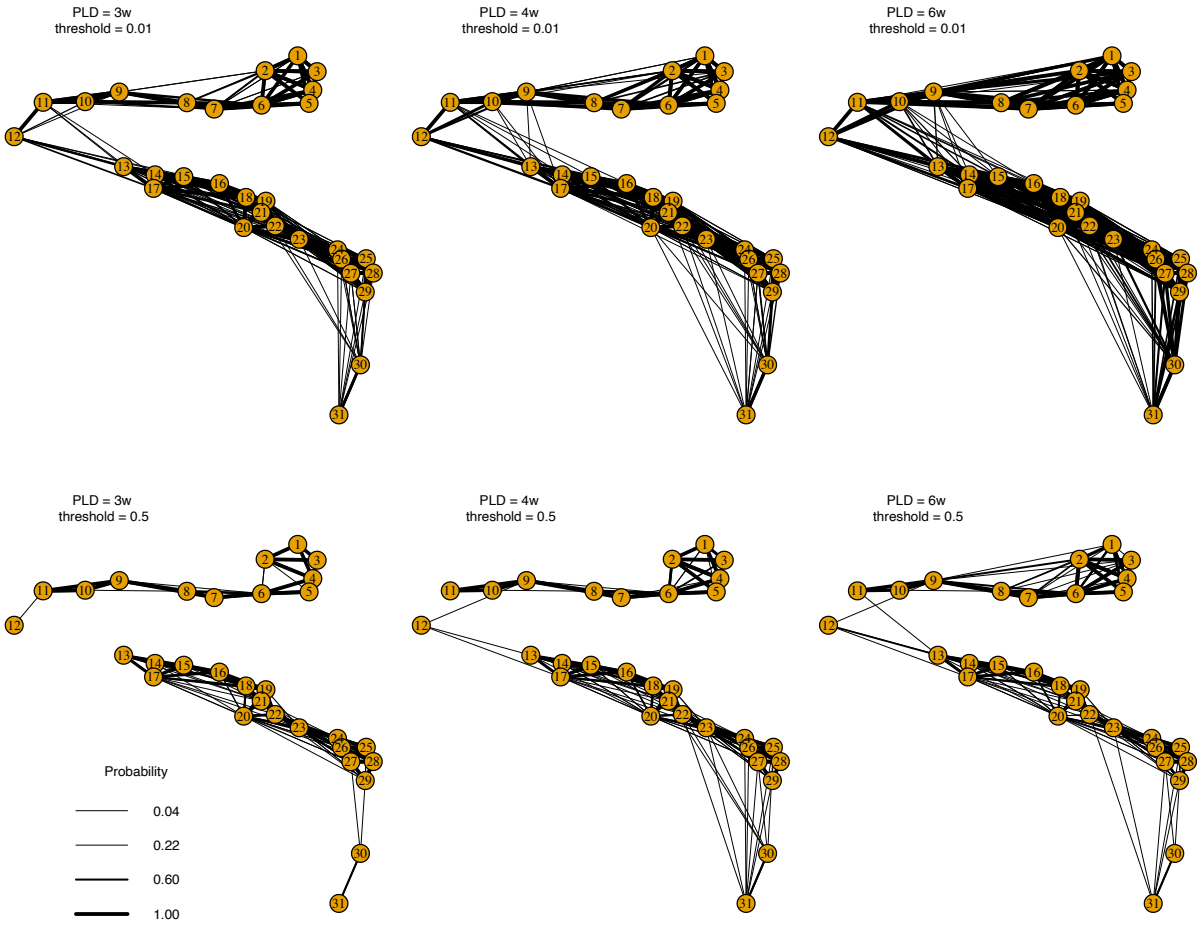

Figure S3. Network maps showing the probability of a link between two zones applying a connectivity threshold of 0.01% (upper row) and 0.5% (lower row). Probability is estimated as the frequency of a connection between two zones across all simulated spawning events (Apr-Sep, 2012-2016) with a pelagic larval duration (PLD) of 3, 4 and 6 weeks. The network is considered fragmented when the probability exceeds the arbitrarily set connectivity threshold (e.g., lower row maps indicate 4 components: (1) Zones 1-11; (2) Zone 12; (3) Zones 13-29; and (4) Zones 30 and 31.

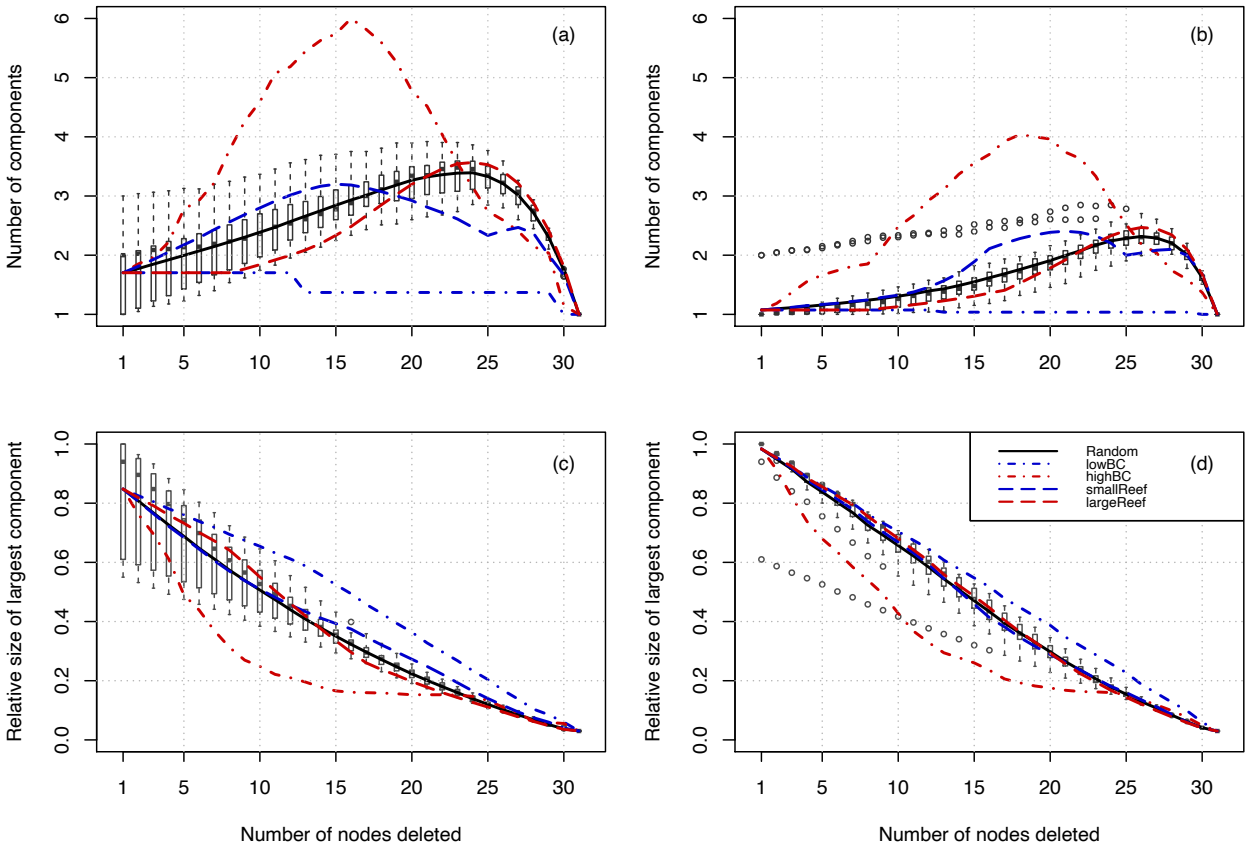

Figure S4. Changes in network metrics number of components (a, b) and relative size of the largest component (c, d), following sequential node deletion. Five node deletion scenarios were tested: (1) random deletion - Random; (1) sequential deletion of low to high betweenness centrality - lowBC; (3) sequential deletion of high to low betweenness centrality - highBC; (4) sequential deletion of the smallest to the largest reef - smallReef; and (5) sequential deletion of the largest to smallest reef - largeReef). For all node deletion tests, a total of 30 deletions were performed for each simulation and metrics recalculated after each deletion. An iterative approach was undertaken for the random deletion scenario and replicated (bootstrap without replacement) 127 times. Metrics were calculated on all simulated events with a pelagic larval duration of 3 weeks (a, c) and 6 weeks (b, d) based on a connectivity threshold of 0.01%. The lines represent average values of the two metrics for the simulated spawning events (Apr-Sep, 2012-2016). The grey boxplots show results from the random scenario across all replicates and the outliers with circles.