

Table S1. Details of the 17 marine bioregions used as units of analyses for the biogeographic comparisons of species turnover within the Leeuwin Current (LC) and the East Australia Current (EAC) systems. Regions were based on the National Marine Bioregionalisation of Australia [25] (see also Fig. 1). Coastal distances were estimated from measurements using a flexible ruler on maps of the bioregions [25]. Herbarium records indicate the number of unique records downloaded from Australia's Virtual Herbarium (www.sapac.edu.au/avh/) from each region, and species richness is the number of unique species identified from those records, in each region.

Bioregion number	Current system	IMCRA Region	Coastal extent (km)	Herbarium records	Species richness
1	LC	Central West Coast	547	3187	455
2	LC	Leeuwin-Naturaliste	497	6528	621
3	LC	WA South coast	1024	2184	449
4	LC	Eucla	1045	681	270
5	LC	Murat	290	1607	374
6	LC	Eyre	1105	13079	808
7	LC	Spencer, North Spencer and St Vincent Gulfs	1221	11875	835
8	LC	Coorong	248	4571	606
9	LC	Otway	736	8038	747
10	LC	Victorian Embayments, Central Victoria, Central Bass Strait, Boags	1281	15794	869
11	EAC	Bruny	532	3899	523
12	EAC	Freycinet	307	1384	353
13	EAC	Flinders	484	584	214
14	EAC	Twofold Shelf	501	1454	360
15	EAC	Batemans Shelf	267	2135	323
16	EAC	Hawkesbury Shelf	331	2724	380
17	EAC	Manning Shelf	281	464	148

