

## 10.5 Assign habitats

Once habitats have been defined (see [Define Ecospace habitats](#)), (and sketched onto the [Basemap](#)), the components of the underlying Ecopath model must be assigned to their 'preferred' habitat. 'Preferred' here means that the group in question will be adapted such that

- its feeding rate and hence its growth rate as well are higher in that habitat than in others;
- its survival rate is higher in that habitat (because the predation rate is higher in non-preferred habitat);
- its movement rate is higher outside than within good habitat.

All three of these choices imply different mechanisms for defining what is good and bad habitat. Users can determine (through the [Dispersal](#) form) the relative strength of these mechanisms.

However, the first job is to assign groups to habitats, which is easy to do if the habitats have been defined in terms of parameters that are themselves easy to determine.

Note organisms at the upper trophic levels, due to their high mobility will tend to 'prefer' a wide range of habitats rather than a specific one.

Also note that definition of habitat in Ecospace usually includes the entire water column, from the surface to the bottom. Thus, while 'rockfishes' will tend to be limited to hard bottoms, and burrowing bivalves to soft bottoms, small coastal pelagics, which occur higher up in the water column, may 'prefer' hard and soft bottom habitats, as long as both are coastal.

Thus, if the habits defined are 'shallow' and 'deep', assigning the groups to their preferred habitat simply consists of clicking 'shallow' for model groups known to limit themselves to shallow waters, and conversely for 'deep'.

Note, however, that organisms assigned e.g. to 'deep' waters will usually consume preys also assigned to 'deep' waters, and conversely for shallow water organisms. Only groups assigned to 'All' habitats can be expected to feed indiscriminately in all habitats.

In the special case of multi-stanza groups, it will be appropriate, in most cases, to assign the juveniles to one or several inshore/shallow habitats, out of reach of the often 'cannibalistic' adults, assigned to habitats that are deeper, or further offshore.

		Assign habitats					Set:	
Group \ habitat #		All	mud bottom	seagrass	deep water	low salinity	Ecospace area	Ecopath area
19	18+ Mullet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
20	Mackrel 0-3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
21	Mackrel 3+	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
22	Ladyfish 0-10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
23	Ladyfish 10+	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
24	Jacks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
25	Bay Anchovy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
26	Pin Fish	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
27	Spot	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
28	Silver Perch	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
29	Scaled Sardine	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
30	Mojarra	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
31	Threadfin Herring	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
32	Manhaden	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
33	Menidia (silverside)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
34	Catfish	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
35	Bumper	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
36	Caridan Shrimp	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
37	Shrimp	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
38	Stone Crab	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
39	Blue Crab	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0.798	1.000
40	Cyprinodontids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0.798	1.000
41	Poecilids	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0.798	1.000
42	Pigfish	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0.798	1.000
43	Gobies	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0.798	1.000
44	Rays	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0.376	1.000
45	Benthic Invertebrates	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
46	Macro Zooplankton	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
47	Micro Zoolplankton	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
48	Infauna	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
49	Attached Microalgae	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
50	Sea Grass	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
51	Phytoplankton	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
52	Detritus	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.000	1.000
53	Habitat area	1.000	0.541	0.256	0.119	NaN		

**Figure 10.7** Assign groups to Ecospace habitats. The 'Ecospace area' is calculated from the basemap, while the 'Ecopath area' is the habitat area fraction assigned to the individual group in the underlying Ecopath model. When Ecospace shows initial imbalance at the start of a simulation it may be because of inappropriate distribution of habitat areas, and a more careful allocation is often required to improve model behaviour.