

Ghost		Influence of Ghosts		Solutions for Advice	
		Impact on recovery of collapsed population	Impact on recovered populations	Use of dynamic reference points	Include in MSE via OM or MP
Population intrinsic					
1	Truncation of age structure, life history parameters	4.0	2.8	3.3	3.8
	coefficient of variation	0.00	0.35	0.36	0.11
2	Loss of subpopulations & rescue effect	3.0	2.3	3.0	2.5
	coefficient of variation	0.21	0.22	0.30	0.42
3	Reproductively driven Allee effect	2.7	1.0	2.3	3.2
	coefficient of variation	0.31	0.00	0.44	0.31
4	Epigenetics	1.5	1.3	1.5	1.7
	coefficient of variation	0.37	0.39	0.56	0.62
5	Phenotypic plasticity lost	2.5	2.2	3.2	2.5
	coefficient of variation	0.22	0.35	0.24	0.42
6	Selection for less intraspecific variation	2.3	2.0	2.3	2.7
	coefficient of variation	0.22	0.32	0.59	0.51
7	Loss of migration memory and social learning	2.7	2.2	2.5	2.0
	coefficient of variation	0.19	0.45	0.55	0.32
Population extrinsic					
8	Alternate trophic pathways	3.8	1.8	3.0	3.5
	coefficient of variation	0.11	0.41	0.21	0.16
9	Habitat fragmentation and range contraction	3.5	3.2	3.0	3.0
	coefficient of variation	0.24	0.13	0.21	0.37
10	Predation driven Allee effect	3.5	1.2	2.2	3.7
	coefficient of variation	0.16	0.35	0.45	0.22
11	Institutional inertia	3.8	2.8	3.8	3.3
	coefficient of variation	0.11	0.52	0.11	0.24
12	Socio-economics	3.5	2.8	1.5	3.2
	coefficient of variation	0.24	0.41	0.37	0.37
13	Emotional fisheries incentives	2.8	1.8	1.6	2.3
	coefficient of variation	0.41	0.64	0.56	0.35