19. Circalittoral coarse sediment

Sensitivity Assessment

Sensitivity scores for characterising ecological groups sensu Tillin & Tyler-Walters (2013) were obtained from Tillin & Tyler-Walters (2014). See case report (Appendix 10) for details of ecological groups that characterise this feature. The resistance, resilience and sensitivity scores for each pressure comprise those scores for the ecological group(s) most sensitive to that pressure. For pressures not assessed in Tillin & Tyler-Walters (2014), scores for characterising species of each ecological group were obtained from the MarLIN website (www.marlin.ac.uk) where available. The overall scores for these pressures again comprises the scores of the most sensitive organism(s) to each pressure.

Table A11.19. Sensitivity assessment for circalittoral coarse sediment. Associated sectors include activities related to offshore renewable energy (O), Fishing (F), or shipping (S). NR = not relevant, NA = not assessed, NEv = no evidence, H = high, M = medium, L = low, VL = very low, N = none, NS = not sensitive. Refs = References. *Overall confidence score of the MarLIN sensitivity analyses for characterising species which followed the MarLIN sensitivity assessment approach which was used prior to the MarESA approach.

Pressures		**Associated sector(s)**	**Resistance**				**Resilience**				**Sensitivity**				**Group or species associated with score**	**Refs**
Classification	**Pressure type**		**Score**	**QoE**	**AoE**	**DoC**	**Score**	**QoE**	**AoE**	**DoC**	**Score**	**QoE**	**AoE**	**DoC**		
Physical	Physical loss (to land or freshwater habitat)	O	N	H	H	H	VL	H	H	H	H	H	H	H	1(d),2,3,5,6,7,8(a),8(b),8(c),8(d),10	3

Pressures		Associated sector(s)	Resistance				Resilience				Sensitivity				Group or species associated with score	Refs
Classification	**Pressure type**		**Score**	**QoE**	**AoE**	**DoC**	**Score**	**QoE**	**AoE**	**DoC**	**Score**	**QoE**	**AoE**	**DoC**		
	Physical change (to another seabed type)	O, F	L	L	NR	NR	M	L	L	NR	H	L	L	NR	8(d)	3
	Physical change (to another sediment type)	O, F	L	L	NR	NR	M	L	L	NR	H	L	L	NR	8(d)	3
	Habitat structure change-removal of substratum (extraction)	O	N	M	L	NR	L	L	NR	NR	H	L	L	NR	5, 8(d)	3
Physical	Abrasion/disturbance of substratum surface or seabed	O, F	M	H	H	H	M	M	M	M	M	M	M	M	2, 5, 8c, 10	3

Pressures		Associated sector(s)	Resistance				Resilience				Sensitivity				Group or species associated with score	Refs
Classification	**Pressure type**		**Score**	**QoE**	**AoE**	**DoC**	**Score**	**QoE**	**AoE**	**DoC**	**Score**	**QoE**	**AoE**	**DoC**		
	Penetration or disturbance of substratum subsurface	O, F	M	H	H	H	M	M	M	M	M	M	M	M	2, 5, 8a, 8c, 8d, 10	3
	Changes in suspended solids (water clarity)	O, F	M	H	M	M	M	M	M	M	M	M	M	M	2, 8d	3
	Smothering and siltation changes (light)	O	N				H				M	*L			*Balanus crenatus*	5
	Smothering and siltation changes (heavy)	O	N	H	H	H	L	L	NR	NR	H	L	L	L	5	3
	Underwater noise	O, F, S	NEv	NR	NR	NR	NEv	NR	NR	NR	NEv	NR	NR	NR		
	Electromagnetic energy	O	NEv	NR	NR	NR	NEv	NR	NR	NR	NEv	NR	NR	NR		

Pressures		Associated sector(s)	Resistance				Resilience				Sensitivity				Group or species associated with score	Refs
Classification	Pressure type		Score	QoE	AoE	DoC	Score	QoE	AoE	DoC	Score	QoE	AoE	DoC		
	Barrier to species movement	O, F	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR		
	Death or injury by collision	O, F, S	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR		
Hydrological	Water flow changes	O	N	H	H	H	M	L	L	NR	M	L	L	L	8(d)	3
Chemical	Transition elements & organo-metal contamination	O, F, S	M				M				M	*L			*Echinus esculentus*	4
Chemical	Hydrocarbon & PAH contamination	O, F, S	N				H				M	*H			*Asterias rubens*, *Echinus esculentus*	2, 4

Pressures		Associated sector(s)	Resistance				Resilience				Sensitivity				Group or species associated with score	Refs
Classification	Pressure type		Score	QoE	AoE	DoC	Score	QoE	AoE	DoC	Score	QoE	AoE	DoC		
	Synthetic compound contamination	O, F, S	N				H				M	*M			*Lanice conchilega, Echinus esculentus, Balanus crenatus*	1, 4, 5
	Introduction of other substances	O, F, S	NA	NR	NR	NR	NA	NR	NR	NR	NA	NR	NR	NR		
	Deoxygenation	O	N				H				M	*H			*Asterias rubens, Balanus crenatus*	2, 5

Pressures		Associated sector(s)	Resistance				Resilience				Sensitivity				Group or species associated with score	Refs
Classification	**Pressure type**		**Score**	**QoE**	**AoE**	**DoC**	**Score**	**QoE**	**AoE**	**DoC**	**Score**	**QoE**	**AoE**	**DoC**		
Biological	Introduction or spread of invasive non-indigenous species	O, F, S	N	H	H	H	VL	M	M	L	H	M	M	L	8(d)	3
	Removal of target species	F	N	H	H	H	VL	L	NR	NR	H	L	L	L	8(d)	3
Biological	Removal of non-target species	F	H	M	L	NR	H	H	H	H	NS	M	L	L		

References for circalittoral coarse sediment sensitivity assessment

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Reference for ecological groups

Tillin, H, Tyler-Walters, H. (2013). *Assessing the sensitivity of subtidal sedimentary habitats to pressures associated with marine activities. Phase 1 Report: Rationale and proposed ecological groupings for Level 5 biotopes against which sensitivity assessments would be best undertaken.* JNCC Report No. 512