

Appendix 11. Sensitivity and recoverability assessment scales (ranks and criteria)

SPECIES SENSITIVITY	
The intolerance of a habitat, community or individual (or individual colony) of a species to damage, or death, from an external factor.	
Rank	Definition (from Hiscock <i>et al.</i>, 1999)
High	The species population is likely to be killed/destroyed by the factor under consideration.
Intermediate	Some individuals of the species may be killed/destroyed by the factor under consideration and the viability of a species population may be reduced.
Low	The species population is unlikely to be killed/destroyed by the factor under consideration. However, the viability of a species population may be reduced.
Not sensitive	The factor does not have a detectable effect on survival or viability of a species or structure and functioning of a biotope.
Not sensitive*	Population of a species may increase in abundance or biomass as a result of the factor.
Not relevant	This rating applies to species where the factor is not relevant because they are protected from the factor (for instance, through a burrowing habit), or can move away from the factor.

Appendix 11. (continued)

RECOVERABILITY	
The ability of a habitat, community or individual (or individual colony) of species to redress damage sustained as a result of an external factor.	
Recoverability assumes that the impacting factor has stopped or been removed. The scale also refers only to the recoverability potential of a species, based on its reproductive biology etc.	
Rank	Definition
None	Recovery is not possible
Very low / none	Partial recovery is only likely to occur after about 10 years and full recovery may take over 25 years or never occur.
Low	Only partial recovery is likely within 10 years and full recovery is likely to take up to 25 years.
Moderate	Only partial recovery is likely within 5 years and full recovery is likely to take up to 10 years.
High	Full recovery will occur but will take many months (or more likely years) but should be complete within about five years.
Very high	Full recovery is likely within a few weeks or at most 6 months.
Immediate	Recovery immediate or within a few days.
Not relevant	If the sensitivity of a species is not relevant then recoverability can <u>not</u> be assessed.

Appendix 11. (continued)

EVIDENCE / CONFIDENCE	
The scale indicates an appraisal of the specificity of the information (data) available to support the assessment of sensitivity and recoverability.	
Evidence / Confidence	Definition (adapted from Hiscock <i>et al.</i>, 1999)
High	Assessment has been derived from sources that specifically deal with sensitivity and recoverability to a particular factor. Experimental work has been done investigating the effects of such a factor.
Moderate	Assessment has been derived from sources that consider the likely effects of a particular factor.
Low	Assessment has been derived from sources that only cover aspects of the biology of the species or from a general understanding of the species. No information is present regarding the effects of factors.
Very low	Assessment derived by 'informed judgement' where very little information is present at all on the species.
Not relevant	The available information does not support an assessment, the data is deficient or no relevant information has been found.
<p>Note: In some cases it is possible for limited evidence to be considered 'high' for the assessment of sensitivity to a specific factor. For example, if a species is known to lack eyes (or equivalent photoreceptors) then it could confidently be considered 'not sensitive' to visual disturbance and the level of evidence would be recorded as 'high'.</p>	

Appendix 11. (continued)

BIOTOPE SENSITIVITY	
The intolerance of a habitat or community of species to damage, or death, from an external factor.	
Rank	Definition (adapted from Hiscock <i>et al.</i>, 1999)
High	Keystone/dominant species in the biotope or habitat are likely to be killed/destroyed by the factor under consideration.
Intermediate	The population(s) of keystone/dominant species in a community may be reduced/degraded by the factor under consideration, the habitat may be partially destroyed or the viability of a species population, diversity and function of a community may be reduced.
Low	Keystone/dominant species in a community or the habitat being considered are unlikely to be killed/destroyed by the factor under consideration and the habitat is unlikely to be damaged. However, the viability of a species population or diversity / functionality in a community will be reduced.
Not sensitive	The factor does not have a detectable effect on structure and functioning of a biotope or the survival or viability of keystone/important species
Not sensitive*	The extent or species richness of a biotope may be increased or enhanced by the factor.
Not relevant	Sensitivity may be assessed as not relevant where communities and species are protected or physically removed from the factor (for instance circalittoral communities are unlikely to be effected by increased emergence regime).

Appendix 11. (continued)

SPECIES THAT INDICATE BIOTOPE SENSITIVITY	
Selection Criteria	
The following criteria are used to decide which species best represent the sensitivity of a biotope or community as a whole.	
Rank	Criteria
Key structural	The species provides a distinct habitat that supports an associated community. Loss/degradation of this species population would result in loss/degradation of the associated community.
Key functional	The species maintains community structure and function through interactions with other members of that community (for example, predation, grazing, and competition). Loss/degradation of this species population would result in rapid, cascading changes in the community.
Important characterising	The species is/are characteristic of the biotope (dominant, highly faithful and frequent) and are important for the classification of that biotope. Loss/degradation of these species populations could result in loss of that biotope.
Important structural	The species positively interacts with the key or characterising species and is important for their viability. Loss/degradation of these species would likely reduce the viability of the key or characterising species. For example, these species may prey on parasites, epiphytes or disease organisms of the key or characterising species.
Important functional	The species is/are the dominant source of organic matter or primary production within the ecosystem. Loss/ degradation of these species could result in changes in the community function and structure.
Important other	Additional species that do not fall under the above criteria but where present knowledge of the ecology of the community suggests they may affect the sensitivity of the community.
Note: All species identified as key will be used in the sensitivity assessment. However, where several important species satisfy the above criteria examples from each rank should be used. Preference should be given to examples where direct evidence of community interaction is available or they are characteristic (highly faithful) of the biotope.	

Appendix 11. (continued)

SPECIES RICHNESS	
The number of species in a given habitat, biotope, community or assemblage	
The following scale is used to judge the likely response of species richness to an external factor.	
Rank	Definition
Major decline	The number of species in the community is likely to decrease significantly (>75% of species) in response to the factor, probably because of mortality and loss of habitat. For example, a change from very rich to very poor on the NHAP scales (Hiscock, 1996b).
Decline	The community is likely to lose some of its species in response to the factor by either direct mortality or emigration.
Minor decline	The community is likely to lose few species (<25% of species) in response to the factor. For example, a decrease of one level on the NHAP scales (Hiscock 1996).
No change	The factor is unlikely to change the species richness of the community
Rise	The number of species in the community may increase in response to the factor. (Note the invasion of the community by aggressive or non-native species may degrade the community).
Not relevant	It is extremely unlikely for a factor to occur (e.g. emergence of a deep water community) or the community is protected from the factor.
	Hiscock, K., 1996b. Interpretation of data. In: <i>Marine Nature Conservation Review: Rationale and methods</i> (ed. K. Hiscock), pp. 73-84. Peterborough: Joint Nature Conservation Committee. [Coasts and seas of the United Kingdom. MNCR Series.]