Appendix 5 – NIWA significance assessment tool

Consequence level	Recovery Period	Key species	Protected species	Ecosystem functional impact	Proportion of habitat affected
0 - Negligible	No recovery time needed	Undetectable for populations of these species	Almost none are impacted	Interactions may be occurring but it is unlikely that there would be any change outside of natural variation	Affecting <<1% of area of original habitat area
1 - Minor	Rapid recovery would occur if stopped - measured in weeks to months	Possibly detectable but little impact on population size and none on their dynamics	Some individuals impacted but no impact on population.	Affected species do not play a keystone role - only minor changes in relative abundance of other constituents	Measurable but localized; affects <1-5% of total habitat area
2 - Moderate	Recovery probably measured in months - years if activity stopped	Affected but long-term recruitment/ dynamics not adversely impacted	Level of interaction/ impact moderately affects population	Measurable changes to the ecosystem components without there being a major change in function (i.e. no loss of components)	Impacts more widespread; 5-20% of habitat area is affected
3 - Severe	Recovery measured in years if stopped	Affecting recruitment levels of populations or their capacity to increase	Level of impact severely affects population levels	Ecosystem function altered measurably and some function or components are missing/ declining/ increasing well outside historical acceptable range and/or allowed/ facilitated new species to appear.	Impacts very widespread; 20-60% of habitat is affected/ removed
4 - Major	Recovery period measured in years to decades if stopped	Likely to cause local extinctions if continues	Likely to cause local extinctions if continues	A major change to ecosystem structure and function. Different dynamics now occur with different species or groups now affected.	Activity may result in major changes to ecosystem; 60-90% affected
5 - Catastrophic	Long term recovery to former levels will be greater than decades or never, even if stopped	Local extinctions are imminent/immediate	Local extinctions are imminent/immediate	Total collapse of ecosystem processes. The diversity of most groups is drastically reduced and most ecological functional groups (primary producers, grazers etc.) have disappeared. Most ecosystem functions such as carbon cycling, nutrient cycling, flushing and uptake have declined to very low levels.	Entire habitat in region is in danger of being affected; >90% affected/ removed

MacDiarmid et al. (2012). Expert Risk Assessment of Activities in the New Zealand Exclusive Economic Zone and Extended Continental Shelf. A Report prepared by NIWA for the Ministry for the Environment