

Summary of evidence in the matter of

**Application for a marine dumping consent to dump dredged material at a deep-sea site east of Great Barrier Island (EEZ100015)**

Clinton Duffy, EPA Hearing, Monday 3 December 2018

- I reviewed the scientific literature, natural history collection records, fishery information and the information provided by the applicant to determine the biological communities likely to be present in and around the Northern Disposal Area (NDA). I conclude that sea floor habitats occurring in this area are likely to be predominantly flat sandy mud and mud, characterised by a biological assemblage dominated by brittlestars, small bivalve shellfishes and a variety of polychaete worms. Emergent epifauna and mobile epibenthic invertebrates include sponges, anemones, sea pens, snails and urchins but appear to be sparse. The most abundant demersal fishes occurring in the NDA are likely to be snapper, tarakihi and school shark.
- Most of the marine invertebrates and fishes recorded from the area potentially affected by the application are widespread on the New Zealand continental shelf.
- I concluded that while the application understates the biological values likely to be present in the area, the NDA is not known and unlikely to provide critical habitat for any protected marine species and that the occurrence of any protected fishes within it is likely to be transitory. I also conclude the seafloor assemblages occurring within and around the NDA are likely to have been modified by bottom trawling, although to what extent is unknown.
- I identified the low level of replication and use of small gravity cores as methodological shortcomings of the monitoring programme.
- I agreed with the 2011 NIWA review that the use of a box corer or grab designed to eliminate 'washout' on ascent with appropriate replication is required to improve the representativeness of the monitoring program and adequately sample the benthic macrofauna.
- I also recommended monitoring of at least two control sites located at comparable depths to the NDA; standardising the timing of ecological monitoring to ensure that it is conducted annually and at the same time of year to ensure comparability of results and minimise variation in the data; high resolution imaging of sea floor habitats to quantify large epifaunal organisms; the continued use of coring to provide continuity with the monitoring undertaken to date; monitoring of demersal fishes using baited underwater or short duration beam trawls.
- The expert witness conference on ecological monitoring recommended video or still photo transects should be added to the sampling methodology at each of the biota sampling sites, with a preference for scaled video transects about 200 m long. This would allow quantification of emergent epifauna, mobile epifauna (e.g. crabs, shrimps), fishes and invasive species. It would also provide visual information on seabed topography and any vulnerable habitats or species that may be present.
- I agree that the use of scaled video transects would negate the need to use baited underwater video or beam trawls to monitor demersal fishes.
- I still consider the use of a grab or box core with adequate replication is needed to adequately sample the benthic macrofauna.