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## 1. Introduction

This paper provides an outline of the contents of benthic habitat science information from mainly New Zealand sources for the ORH AEEF 2013. There is a wide range of additional New Zealand and international literature that will be available for the AEEF but is not specifically mentioned in this document.

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## 2. Benthic Invertebrate Catch Information

- Observer Data Report
    - The catch of benthic fauna (including protected corals, echinoderms, crustaceans, molluscs sponges and other organisms from MPI observer data for each of the four orange roughy fisheries from 2007-08 to 2011-12 is presented in Deepwater Group (2013)'s Observer Data Report.
  - Anderson (2011)
    - Appendix 1 of Anderson (2011) provides estimated catch and percentage of invertebrates from the orange roughy fisheries.
  - Anderson (2013)
    - Table 9 of Anderson (2013) provides regression slopes and trends for bycatch (retained and discarded) species, including some benthic invertebrates, from all Tier 1 fisheries, including the orange roughy fishery.
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## 3. Benthic Impacts

- Althaus et al. (2009) describe impacts and recovery of trawling on megafauna of seamounts off Tasmania Black et al. (2013) provides trawl footprint information.
  - Black et al (2013) Deepwater Trawl Footprint - AEBR 110
  - Clark et al. (2010) provides information on trawl effects on the Graveyard complex of the Chatham Rise.
  - Floerl et al (2012), Hewitt et al. (2011) and Hewitt et al. (2011a) provide results of Chatham/Challenger surveys on benthic patterns, diversity and biotic habitats.
  - Kaiser et al (2006) provides information on Benthic Recovery, maintaining that “low-growing large-biomass biota such as sponges and soft corals took much longer to recover (up to 8 yr) than biota with shorter life-spans such as polychaetes (<1 yr).
  - MPI (2012) Aquatic Environment and Biodiversity Annual Review (p 165) cites Williams *et al.* (2010) finding that Hard-bottom fauna is predicted to recover most slowly and concluded that hard-bottom fauna on seamounts did not show signs of recovery within 5–10 years on Australasian seamounts.”
  - Mormede & Dunn (2013) use population modelling to assess benthic impacts to inform risk assessment.
  - O'Driscoll & Clark (2005) assess benthic fishing on seamounts.
  - Rowden et al. (2005) consider the classification of seamounts using a range of physical characteristics that are biologically meaningful.
  - Rowden et al (2008) describe the 'Seamount' database.
  - Rowden et al (2012) provides a review of New Zealand benthic soft sediment communities
  - Stewart et al. (2013) provides analysis of the orange roughy trawl footprint on the flats and UTFs within the four selected orange roughy fisheries over the past 20+ years and the last 5 years.
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