ORANGE ROUGHY AEEF 2013:

RETAINED & BY-CATCH SPECIES SCIENCE INFORMATION

30 JULY 2013

1. Introduction

This paper provides a brief outline of the contents of some of the available literature and other information from New Zealand sources with science information on retained and bycatch species relevant to 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.

2. Retained Species and By-catch Species

- **Literature Dealing with a Range of Species**
  - DWG & MPI (2013) gives catch rates of retained and discarded species for the individual species or species groups in the Observer Data Report.
  - Anderson (2013) in Table 5 gives annual bycatch (non-target retained and discarded species) estimates from orange roughy fisheries for individual species based on observer catch rates from 1990-91 to 2010-11. Table 9 provides regression slopes for changes in bycatch rates over time.
  - Anderson (2011) in Appendix 1 gives a list of the top 50 observed species from all orange roughy fisheries combined (including the four fisheries being assessed in the ORH AEEF 2013) from 2005-06 to 2008-09.
  - Anderson *et al*. (1998) is an atlas of fish and squid distributions from research trawls with maps of distributions.
  - Ministry for Primary Industries (2013) Fisheries Assessment Plenary reports give stock assessments and yield estimates for commercial species. The Plenary documents for individual species provide extensive lists of references to literature on the individual species and assessment methods.
  - O'Driscoll *et al* (2011) provides a review of Chatham Rise trawl surveys to 2010 that includes species biomass trends and distributions for a large number of species.
  - Livingston *et al* (2003) gives trends in the incidental catch of major fisheries on the Chatham Rise up to 1998-99 from commercial catches, observer records and research trawl surveys.
  - Tracey *et al* (2012) Patterns of fish species similarity and abundance add to evidence suggesting that faunal communities on seamounts may be populated from a broad regional species pool, yet show considerable variation on individual seamounts.

- **Alfonsino**
  - MacGibbon (2013) provides a fishery characterisation and CPUE analysis for alfonsino.

- **Feeding and Diet**
  - Stevens *et al* (2013) reviews and summarises diet information for New Zealand fishes.
  - Jones (2010) Describes diets of eight fish species from the upper slope off the Wairarapa coast.
  - Jones (2008) Describes biology and diet of two species, a rattail and a dogfish.

- **Sharks**
  - Francis & Lyon (2012) provide a review of recent publications on New Zealand sharks, skates and rays covering a wide range of species and researc topics.
  - Blackwell (2010) provides information on the distribution and abundance of deepwater sharks in New Zealand.
  - Dunn *et al.* (2010) provides information on the diet of New Zealand deepwater sharks.
  - Dunn *et al* (2013) reviewed eleven species of deepwater Squaliform sharks that indicated differences in diet, depth and distribution suggesting niche separation to avoid competition.
  - Parker & Francis (2012) provide an assessment of the productivity of two New Zealand deepwater sharks.

- **Rattails**
  - Stevens et al (2010) provides estimates of age, growth and maturity for rattails (Macrouridae).