

PI 2.4.1: To review at the next audit the research work to assess bottom trawl footprint and impact, by BOMECE habitat class or an improved tool when it becomes available.

This text provides the commentary of Rich Ford, Principal Scientist, MPI on updates to progress on assessing benthic deepwater impacts and risk since the last MSC assessment in 2016. The BOMECE remains the best available tool in this space but is limited in its application, therefore MPI is investigating an Impact/Productivity approach to benthic risk assessment that was recommended from a workshop in 2015 (Ford et al. 2016).

I am aware that progress has been made regarding three areas of benthic risk: quantifying the trawl footprint, improving our knowledge of benthic distributions and assessing risk using, amongst other things, these pieces of information.

In terms of trawl footprints

- a. The deepwater trawl footprint report until 2012-13 has been published.
- b. The draft deepwater trawl footprint until 2013-14 has been submitted, reviewed and MPI is awaiting final submission.
- c. The next iteration of the deepwater trawl footprint, until 2015-16 has been contracted, and the draft final report is due by the middle of July.

Together these reports all show a very stable, and increasingly concentrated deepwater footprint that tends to fluctuate in extent over time mainly due to changes in hoki catch.

In terms of improving our understanding of benthic habitats or distributions progress has been made in three areas:

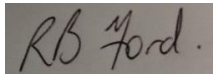
- a. The project ZBD2016-11 leverages off MBIE Tangaroa vessel time to enable deepsea sampling to further address data gaps in benthic distributions and to quantify species distributions. The voyage for this project has been completed, samples are being analysed and the first of the three reports under this project is due before the end of November, 2017. The entire project is due to deliver before the end of December 2018.
- b. The final report for project ZBD2012-03 has been approved for publication. This study showed high intensity trawling reduces the density of sensitive taxa and overall evenness and diversity of epifaunal communities in deep-sea soft sediment environments. Such reductions in epifaunal diversity and the loss of functional types may have wider effects on the Chatham Rise ecosystem, including reduction in the availability of prey items for benthic-feeding demersal fishes.
- c. A power analysis is underway under project SEA2016-08 to determine sampling effectiveness to look at impacts of trawling in Spirits Bay and potentially recovery of the benthos from trawling. This work will extend the time series of benthic recovery times, which has been compiled from both Spirits Bay and from work done in the deep sea.

In terms of assessing benthic risks from fishing progress, which builds on the projects above, progress has been made in two projects:

- a. The project BEN2007-01 is finished and published. One of its major findings was that trawling that contacts the soft-sediment benthos more than once a year may deplete substrate destabilisers and emergent epifauna by up to 50% compared to undisturbed levels. This level of bottom disturbance occurs across 3.5%, 1.6% and 0.01% of the area for the 200 – 500m, 500 – 1000m and 1000 to 1600m depth bands, respectively.
- b. The project BEN2014-01 is conducting a quantitative risk assessment for benthic habitats. This builds on the work in DEE2010-05A (Tuck et al. 2014) by using an indicator approach to benthic impacts, including the use of coral species. A methods presentation has shown they will use

the Chatham Rise as a case study and six different indicator taxa from different habitats in order to try and implement their methodology. A subsequent Aquatic Environment Working Group meeting helped determine inputs to the risk assessments. This project is due to finish before February 2018.

Rich Ford
Principal Scientist, MPI

A small rectangular image containing a handwritten signature in black ink that reads "RB Ford."

References

- Black, J.; Tilney, R. (2017). Monitoring New Zealand's trawl footprint for deepwater fisheries: 1989/90 to 2011/12 and 1989/90 to 2012/13. New Zealand Aquatic Environment and Biodiversity Report No. 176. 65 p. <http://mpi.govt.nz/document-vault/15880>
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- Tuck, I.D.; Pinkerton, M.H.; Tracey, D.M.; Anderson, O.A.; Chiswell, S.M. (2014). Ecosystem and environmental indicators for deepwater fisheries. New Zealand Aquatic Environment and Biodiversity Report No. 127. 143 p.