

strong declines, in catch and catch rates. Catch rates of orange roughy on the West Norfolk Ridge were higher in 2004–05 and in 2005–06 than in 2002–03 and 2003–04.”

New Zealand has contracted additional research to evaluate the potential use of effort, catch and standardised CPUE trends, niche-factor analysis and carrying capacity of seamount features to estimate sustainable orange roughy catch rates in the various high seas fishing areas. This work will be conducted over January - September 2009 and results will be used to revise New Zealand's catch limits for orange roughy in the SPRFMO Area (see *Section 7: Management and Mitigation Measures*).

6. Information Gathering and Reporting

This section provides information on all of the fisheries monitoring and data collection systems implemented by New Zealand for bottom fishing vessels in the SPRFMO Area, the extent to which these comply with the SPRFMO Data Standards (SPRFMO, 2007c), and the process and progress with submitting data to the SPRFMO Secretariat.

6.1 Commercial Catch and Effort Returns

All holders of New Zealand high seas fishing permits are required to submit comprehensive catch and effort information on all fishing operations. The main commercial catch return forms required from high seas fisheries are the *Commercial High Seas Trawl Catch Effort Return* (HSTCER) for all trawl operations, and the *Commercial High Seas Lining Catch Effort Return* (HLCER) for all line fishing operations.

Examples of commercial catch and effort data return forms are shown in Appendix B, showing the data collected on each form. These data collection systems comply with the SPRFMO data collection standards for these fisheries in most respects, differing only in the following:

- **Commercial High Seas Trawl Catch Effort Return (HSTCER)**

- Retained catch of all species: These catch returns are currently designed to report catch of the top five species, and not of all species. However, catch of all species is recorded by scientific observers.
- Estimation of discards by species: Commercial returns do not report discards. However, discards are recorded by scientific observers.
- Captures of marine mammals, seabirds or reptiles: These are not recorded on commercial returns. However, information on all protected species captures is recorded by scientific observers.

With the implementation of 100% observer coverage on the New Zealand high seas bottom trawl fishery, all of the bottom trawl data required by the SPRFMO data standards are therefore collected.

- **Commercial High Seas Lining Catch Effort Return (HLCER)**

Commercial catch returns for bottom line fishing are similar to bottom trawl returns, and also only record information on catch of the top five species, and do not record discards or captures of marine mammals, seabirds and reptiles. New Zealand is working to implement at least 10% scientific observer coverage on high seas bottom line fisheries to provide indices of this information.

6.2 Scientific Observer Coverage and Data Collection

In accordance with the interim measures, all bottom trawling vessels have been required to carry at least one scientific observer on all bottom trawl fishing trips in the SPRFMO Area since December 2007, and may be required to carry two observers if the vessel is capable of fishing 24 hours / day. For high seas bottom line fisheries, New Zealand has established an initial target of 10% observer coverage of bottom line fishing operations.

New Zealand observers complete a wide range of data collection forms, depending on the nature of the fishing operation, and data collection priorities each trip. Examples are provided in Appendix B of two of the main forms relevant to scientific observation of high seas bottom trawling operations, the *Observer Trawl catch Effort Logbook* and the *Observer Benthic Materials Form*. Observers are also required to complete a *Vulnerable Marine Ecosystem Evidence Process* form (shown in Appendix C) for bottom trawl tows in any fishing areas in which a move-on rule is being applied. In addition, they collect data on length frequency, maturity stages, ageing materials and captures of protected species, in accordance with priorities for each trip.

6.3 Implementation of Vessel Monitoring Systems

Minimum standards for vessel monitoring system (VMS) data collection and reporting by participants in fisheries in the SPRFMO Area are set out in Annex G of the report of the 4th SPRFMO Meeting. New Zealand legislation requires all New Zealand fishing vessels operating in the SPRFMO Area to be fitted with tamper-proof Automatic Location Communicators (ALC) that continuously transmit information to the New Zealand Ministry of Fisheries VMS. This transmitted information is routinely monitored and can be used to assist with verifying catch effort activity reported by the commercial operators. The minimum standards set by the Ministry of Fisheries fully meet the specifications for the frequency, accuracy and content of VMS position reports outlined in the VMS Standard.

6.4 Provision of Data to the SPRFMO Secretariat

New Zealand has provided bottom trawl catch and effort data for all high seas fishing operations in the SPRFMO Area over the calendar years 2002 - 2006, and jack mackerel catch and effort data from 1990 onwards, to the SPRFMO Secretariat in 5° x 5° resolution 'public domain' format (as described in the SPRFMO Data Standards). New Zealand has also extracted, groomed and error-corrected bottom trawl and bottom line catch and effort data for all high seas fishing operations from 1990 - 2007, and undertaken to provide these to the Secretariat once it has developed the database and security systems required to store and manage these data securely.

Details of data submissions made to the SPRFMO Secretariat are as follows:

2007 Submission – (Jan 2008)

- Data on fishing activities (all methods) from 1 January 2002 to 31 December 2006, aggregated to the "public domain" level - calendar year and 5 degree by 5 degree areas. Notes have been included to explain data aggregation or grooming methods.
- The report, '*New Zealand's CPUE data preparation documentation to SPRFMO*', documents the data preparation process from the raw catch and effort logbook data to the final data supplied to the SPRFMO Interim Secretariat. This details the extent to

which each of the data types required by the SPRFMO data Standard are being collected and any steps being taken to fill any gaps.

- Register of NZ vessels fishing in SPRFMO Area for the period May 2007 – April 2008.
- Trawl footprint submission, footprint maps and block coordinates.

2008 Submission – (Mar 2008)

- Preliminary summary of estimated catches of blue mackerel, jack mackerel and mackerels in the New Zealand EEZ by calendar year 2002 – 2007.

2008 Submission – (Jun 2008)

- The report, 'New Zealand Jack Mackerel Conservation and Management Measures'.

2008 Submission – (Oct 2008)

- Data on fishing activities for the calendar year 2007 (all methods), aggregated to the "public domain" level - calendar year and 5 degree by 5 degree areas.
- The report, 'New Zealand's CPUE data preparation documentation to SPRFMO', updates the previous report of the same name and documents the data preparation process from the raw catch and effort logbook data to the final data supplied to the SPRFMO Interim Secretariat.
- Data on New Zealand flagged vessels authorized to fish in the SPRFMO Area for non-highly migratory species for the period 1 May 2008 – 30 April 2009.
- Chilean jack mackerel conservation and management measures information and catch data proportions (estimates) in mixed jack mackerel catches as prepared for the calendar years 1985 to 2006 in 5 degree by 5 degree areas. Estimated catch totals for each year, fishing method (purse seine & trawl), and latitude / longitude block were raised so the total estimated catch equals the total Chilean jack mackerel landings for the summary period.

Future Submissions

- Revise 2002 -2006 to report data from NZ flag vessels only.
- Provide all 1990 – 2002 data at public domain resolution.