

A reckless proposal: Orange roughy catch carry-over

Why SPRFMO parties should reject New Zealand's proposal for 2 year carry-over and accumulation of orange roughy annual catch limits

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New Zealand has proposed in [COMM 12 – Prop 11](#) to amend [CMM03a-2023](#) and allow orange roughy total allowable catch (TAC) limits for the Louisville Seamount Chain to be carried forward and accumulated for multiple years. Currently, the measure allows 10% of the annual catch limit to be carried forward to the following year if uncaught. New Zealand proposes to amend this to allow 100% of the TAC to be carried over for two years in a row (totalling a 200% carry-over) which would allow up to three years' catch to be taken in a single year: *“For the avoidance of doubt, a maximum total of three years allocation can be caught in a single year as a result of carry forward accumulation.”* ([COMM 12 – Prop 11](#) footnote 16, page 5). This is not science based, it is bad practice fisheries management, and it would be a reckless precedent in internationally-managed fisheries.

The paper New Zealand submitted to SPRFMO's Scientific Committee (SC) earlier this year, [SC11-DW06](#), modelled the impacts of TAC carry-over and found that it may **increase the bottom trawl fishing footprint** compared to TACs taken annually, and *“as the footprint increased, so did the number of VME indicator taxa abundance model grid cells that were overlaid by the footprint, and therefore the relative number of individuals impacted (abundance index) also increased.”* (p. 12). The paper concluded that *“Accumulation of catch limits over two, three, or four years, may increase the overall fishing footprint and relative impact on VME indicator taxa depending on how future fishing activity takes place; however, the total impact of this on the predicted abundance of VME indicator taxa has not been determined.”* (p. 20).

- This would be a substantial change from the current measure, increasing the carry-over provision from 10% for only one year, to 100% per year for up to two years, i.e. **200% of the annual catch limit carried over**. That would allow up to three years' TAC to be taken in the third year. Based on current TACs for the Louisville Seamount Chain, this could accumulate up to a combined 1,743 tonnes.
- High levels of catch carry-over are **bad fisheries management practice and would set a worrying precedent internationally**. Other RFMOs do not allow such high levels of TAC carry-over, and reviews and adjustments of TAC carry-over provisions elsewhere

have consistently led to their reduction or elimination, not their increase. Refer to Table 1 for details.

- The proposal is **contrary to the precautionary approach**, which is required under article 3(2)(a) of the SPRFMO Convention. The science points to increased impacts on VMEs, and any uncertainty about those impacts requires the Commission to *“be more cautious when information is uncertain, unreliable, or inadequate.”*
- The proposal would allow up to three years’ catch to be taken in one year. Given the uncertainty of orange roughy stock assessments in SPRFMO and adjacent in-zone fisheries (e.g. New Zealand’s Chatham Rise), and the disappearance of spawning aggregations from heavily trawled seamounts, **this is also not precautionary**.
- The proposal **fails to take an ecosystem approach**, required under the Objective (article 2) of the SPRFMO Convention. It does not consider the impact on associated deep sea species (such as deep sea sharks) and identifies a risk of increasing the trawl footprint which would put more benthic species, habitat, and VMEs, at risk.
- The proposal relates to a highly biodiverse area that is a priority for high seas protection. Parts of the Louisville Seamount Chain are listed as an Ecologically or Biologically Significant Marine Area (EBSA) under the Convention on Biological Diversity (CBD).
- The argument that the New Zealand fishing industry needs TAC carry-over to make fishing profitable is baseless. Since separate TACs were introduced for Louisville, the highest catch has been below 14% of the annual limit. The number of vessels engaged in the fishery has been in consistent decline since 2002, and even in that year when 19 New Zealand bottom trawl vessels were active in the SPRFMO area, the Louisville catch was 568 tonnes, below the current TAC of 581 tonnes.

SPRFMO parties should reject the New Zealand proposal outright, to prevent deterioration of the Commission’s management regime and to avoid setting a precedent that could lower the management standards of other fisheries in the South Pacific and elsewhere.

TAC carry-over in other high seas fisheries

There is no precedent in other RFMOs or in CCAMLR for carrying forward catch limits to the extent that New Zealand proposes, i.e. 200% carry-over, allowing up to three years’ catch to be taken in one year. Carry-over (also referred to as roll-over or underage) is substantially lower in other RFMOs, and in most cases has been reduced or has never been allowed in other high seas fisheries.

Table 1: TAC carry-over provisions for other high seas fisheries

| Organisation / fishery (CMM, Res or Rec) | Carry-over provision | Recent adjustments or conditions |
|---|---|---|
| SPRFMO / jack mackerel (CMM 01-2023) | No provision for carry-over of catch limits | 10% carry-over of uncaught quota proposed, but not agreed |
| SPRFMO / jumbo flying squid (CMM 18-2023) | No provision for carry-over of catch limits | |
| NAFO / all species (NAFO/COM Doc. 24-01) | No carry over is allowed for any species | |
| NPFC / all species (NPFC Handbook 2023) | No carry-over is explicitly allowed for any species, and is discouraged for bottom fisheries in CMM 2023-05 | NPFC CMM 2023-05 discourages parties from carrying over underages for bottom fisheries |
| SIOFA / bottom fisheries (SIOFA CMM 01 (2023)) | Catch limited to average annual level, no mention of carry-over | |
| CCAMLR / toothfish, krill, icefish (Schedule of CMs 2023/24) | No carry-over allowed, season ends when catch limits reached | |
| GFCM / turbot (Rec GFCM/43/2019/3) | In general, 15% carry-over allowed under the MAP for Black Sea turbot. | Higher carry-over agreed in exceptional circumstances, e.g. COVID-19 |
| ICCAT / bigeye tuna (ICCAT rec 22-01) | No more than 10% of annual catch limit | From 15% in rec 16-01 to 10% in 19-01 and 22-01 |
| ICCAT / North Atlantic swordfish (ICCAT rec 23-04) | Up to 15% carry-over for countries with catch limits over 500 mt or 40% for those with limits under 500 mt | |
| ICCAT / South Atlantic swordfish (ICCAT rec 22-04) | Maximum carry-over of 10% of the previous year's quota | Reduced from 30 or 50% after 2016 review* |
| IATTC / Pacific bluefin tuna (Res C-23-01) | Under-harvest may be carried over to a maximum of 5% | |
| CCSBT / southern bluefin tuna (2019 Res on limited carry-forward) | Up to 20% of annual catch limit may be carried forward to the following year | Not allowed when global TACs, or the TAC of that Member, are being reduced |

* See [ICCAT Performance Review 2016](#) (p26): *The Panel notes the high underage [catch] permitted to be transferred from year to year of 30%, and indeed 50% from 2013. The Panel finds this inconsistent with sound management given the high uncertainty in the assessment, and the more modest underage/overage [under or over catch] allowed for other ICCAT stocks (10 or 15%).*

TAC carry-over proposal is not precautionary or ecosystem-based

The paper and proposal presented by New Zealand are explicitly not ecosystem-based. Firstly, they exclude any consideration of associated species that may be taken in the orange roughy trawl fishery (such as deep-water sharks). Secondly, while the SC paper [SC11-DW06](#) found there may be an increase in the bottom trawl fishing footprint and a consequent increased risk of significant adverse impacts on vulnerable marine ecosystems, this was not investigated further, and the proposal [COMM 12 – Prop 11](#) is to allow TAC carry-over regardless of that risk, noting:

“Accumulation of catch limits over two, three, or four years, may increase the overall fishing footprint and relative impact on VME indicator taxa depending on how future fishing activity takes place; however, the total impact of this on the predicted abundance of VME indicator taxa has not been determined.”

The existence of the encounter protocol and move-on rule are mentioned by New Zealand as mitigating factors to the potential increase in trawl footprint and VME impact, however these measures are reactive when damage occurs, not proactive in preventing it. In any case, no change has been proposed by New Zealand to those measures to account for the shift from annual TAC limits to as much as three times the annual limit being taken in one year. Furthermore, a recent paper submitted by New Zealand to the SC in 2023 reveals that, had the current encounter protocol and move-on rule been in place earlier, it would have been triggered 27 times in the Louisville Seamount BTMAs since 2008 (based on Table 6 of [SC11 – DW10](#)) - and likely many more times in fishing prior to 2008.

No attempt has been made to list known VME locations (identified from the New Zealand paper by high individual, cumulative or multi-taxa bycatch) on Annex 9 of [CMM 03-2023](#), and to exclude them from bottom trawling areas, as required under paragraph 48 of that measure.

More broadly, the practice of carrying over catch limits between years is the opposite of precautionary. The [first independent performance review of ICCAT in 2009](#) noted in relation to the carry-over of under-caught allocation: *“This practice that allows ICCAT CPCs to carry forward up to 50% of uncaught annual catch quota in some ICCAT fisheries is not considered to be good practice in fisheries management.”* The review panel further noted: *“Allowing carry forward of uncaught quota can also mask problems with the stock as the reasons that the TAC/quotas remain uncaught can be related as much to overfishing and subsequent unavailability as to economic reasons.”* And concluded: *“The Panel strongly recommends that ICCAT immediately discontinue this practice of allowing the carry forward of uncaught allocations in all fisheries.”*

There are significant uncertainties surrounding orange roughy stock assessments in both SPRFMO (leading to recent TAC reductions) and adjacent in-zone areas, making it all the more important that management decisions follow a precautionary approach.

Risk to biodiversity on the Louisville Seamount Chain

The Louisville Seamount Chain is a hotspot of ocean life, containing diverse and abundant coral ecosystems that have been [identified as an EBSA under the CBD](#). That includes the seamounts in SPRFMO's North and Central Louisville Fishery Management Areas (FMAs). The South Louisville FMA is not part of the EBSA as [the area south of 40° South was not assessed at the time](#), however it's likely that it also contains valuable and vulnerable deep sea ecosystems. Furthermore, it represents a potential climate refuge for populations from seamounts at lower latitudes if species are displaced due to warming waters.

The fishery in the Louisville area is focused on the summits of around 20 seamounts, where significant damage has already been done by past trawling. Tripling the intensity of trawling within a single season could do significant further damage to the corals and other deep sea life found on those seamounts. New Zealand's paper to SC conceded that an increased trawl footprint and greater risk to VMEs may occur if TACs are carried over for 1, 2, 3 or 4 years.

Past bycatch on the Louisville Seamounts has been extremely high, including multiple incidents where more than a tonne of coral was dragged up in a single trawl, and in one case, five tonnes in a single trawl by a New Zealand vessel. (See Table 8 of [SC11 – DW10](#)) This is among the highest recorded coral bycatch incidents from a high seas bottom trawl fishery globally. In some Louisville Bottom Trawl Management Areas (BTMAs) 50-100% of trawls since 2008 have contained VME indicator taxa, and species from 9 of the 13 SPRFMO VME indicator taxa have been brought up as bycatch in the Louisville FMAs.

Given significant VME impacts have already occurred on the Louisville Seamount Chain, the Commission must not approve a proposal that may increase those impacts further, as the New Zealand proposal for TAC carry-over does. For example, the VME where 5 tonnes of coral was taken as bycatch in one trawl in 2015 has not been trawled since then, but remains open to trawling. If the Commission were to allow three years' TAC to be taken in one year, it may result in VMEs such as that one being trawled again, and damaged further.

Uncertainties over orange roughy stock assessments

There are currently no validated stock assessments for orange roughy stocks in SPRFMO. The last full assessments carried out, for 2017 to 2020, were found in 2022 to be unreliable,

insensitive to actual data, and driven by model assumptions, and were rejected for use in setting catch limits (See [SC10-DW01_rev1](#)).

New Zealand's paper to the SC also failed to mention that some EEZ stock assessments for orange roughy were deemed unreliable by the [2023 Fisheries Assessment Plenary](#), leading to the [self-suspension of MSC certification over the majority of the New Zealand orange roughy catch](#). This was for the East and South Chatham Rise, and the assessment for the Northwest Chatham Rise was also called into question. The Chatham Rise is the nearest in-zone orange roughy fishery to SPRFMO's Louisville FMAs.

The unreliability of New Zealand orange roughy stock assessments also raises further uncertainty about the status of orange roughy stocks in the SPRFMO area. Factors such as the age at full maturity (found to be around 80 years in [recent New Zealand stock assessments](#), not 30 as previously assumed) and skipped spawning in younger fish are likely to be true for orange roughy populations in the high seas as well.

Seamounts and similar features are also important for orange roughy spawning. Recent assessments of orange roughy stocks in New Zealand waters have found that spawning aggregations have disappeared from heavily trawled seamounts and features, and not returned. For some sub-stocks, the only known spawning aggregations now occur on seamounts that are closed to trawling (see p 917 of the [2023 Fisheries Assessment Plenary](#)). Increasing the intensity of trawling on Louisville Seamounts through TAC carry-over may have consequences for the stock itself, by impacting the spawning behaviour of mature orange roughy on seamounts and features.

New Zealand's orange roughy management in-zone

The [New Zealand Fisheries Act \(1996\)](#) Section 67A *Allocation of additional annual catch entitlement in case of underfishing* allows a maximum of 10% of an annual catch entitlement (ACE) to be carried forward under paragraph 2b(ii), except when total allowable catch limits have been reduced from the previous year (3b). This applies to orange roughy fisheries in New Zealand waters.

Currently, [New Zealand domestic fisheries legislation](#) and [Australian provisions](#) are compatible with the 10% carry-over of orange roughy allowed in SPRFMO. However, the proposal by New Zealand to allow 100% annual carry-over for two years, up to 200% in total, is clearly not consistent with its domestic regulations for fisheries within its own EEZ, nor with Australia's provisions.

SC comments on the carry-over and accumulation of orange roughy catch limits

The Scientific Committee's notes and the advice on the New Zealand paper [SC11-DW06](#) are given in Section 5.2 paragraph 121, page 22 of the [SPRFMO 11th Scientific Committee Meeting Report](#). These are repeated here, with the most relevant points highlighted:

121. Relative to SC11-DW06, the SC noted:

- a. Simulation outcomes are dependent on historical fishing records and fisher behaviour and may not reflect future fisher behaviour. The more fisher behaviour changes from past behaviour, the greater the likelihood that historical fishing patterns are not a valid predictor of future fishing.
- b. Modelling was necessarily conducted by sampling from historical fishing records without replacement. If modelling had been done with replacement there would be no difference between the annual catch and accumulated catch scenarios.
- c. **The analysis of ecosystem impact used a relative measure of impact, and it has not been determined if estimated increases in relative impact on VME indicator taxa would correspond to significant adverse impacts on VMEs.**
- d. **The effects of catch accumulation on non-target fish species have not been considered in this analysis.**
- e. While the analysis used data from both New Zealand and Australian fisheries, it is considered to be more reflective of New Zealand fishing patterns.

The SC agreed that:

- f. Orange roughy stock status is very unlikely to be impacted by taking accumulated catches in alternating years.
- g. **Accumulation of catch limits over two, three, or four years, may increase the overall fishing footprint and relative impact on VME indicator taxa depending on how future fishing activity takes place; however, the total impact of this on the predicted abundance of VME indicator taxa has not been determined.**

Table 2: New Zealand bottom trawl fleet and effort (number of vessels and trawls) and orange roughy TAC and catch (tonnes) in SPRFMO Louisville Area since 2002

| YEAR * | ACTIVE BOTTOM TRAWL VESSELS ** | NUMBER of TRAWLS (LOUISVILLE) | ORANGE ROUGHY TAC *** | ORANGE ROUGHY CATCH (LOUISVILLE) |
|--------|--------------------------------|-------------------------------|-----------------------|----------------------------------|
| 2002 | 19 | 890 | no limit | 568 |
| 2003 | 17 | 774 | no limit | 859 |
| 2004 | 17 | 1,340 | no limit | 1,106 |
| 2005 | 12 | 838 | no limit | 623 |
| 2006 | 8 | 588 | no limit | 493 |
| 2007 | 4 | 126 | no limit | 280 |
| 2008 | 5 | 0 | no limit | 0 |
| 2009 | 7 | 0 | 1,852 | 0 |
| 2010 | 7 | 303 | 1,852 | 584 |
| 2011 | 6 | 258 | 1,852 | 285 |
| 2012 | 5 | 296 | 1,852 | 288 |
| 2013 | 5 | 299 | 1,852 | 565 |
| 2014 | 6 | 263 | 1,852 | 754 |
| 2015 | 5 | 221 | 1,852 | 462 |
| 2016 | 6 | 40 | 1,852 | 27 |
| 2017 | 5 | 352 | 1,852 | 420 |
| 2018 | 6 | 77 | 1,852 | 81 |
| 2019 | 4 | 36 | 1,026 | 139 |
| 2020 | 3 | 103 | 1,026 | 133 |
| 2021 | 1 | 0 | 1,026 | 0 |
| 2022 | 0 | 0 | 1,026 | 0 |
| 2023 | | | 581 | |

* Year is calendar year, except for active vessels which is for the permit year starting in that year, e.g. active vessels in 2022-2023 permit year are in row 2022

** Number of New Zealand bottom trawl vessels active is for the whole SPRFMO area

*** From 2009 to 2019, New Zealand had a total catch limit of 2,614 tonnes which included an orange roughy catch limit of 1,852. This was for the entire SPRFMO area, not just Louisville

Data Source References: 2002-2015 from [NZ 2016 Annual report to SPRFMO](#)
2015-2018 from [NZ 2020 Annual report to SPRFMO](#)
2018-2023 from [NZ 2023 Annual report to SPRFMO](#)