

**Western
Pacific
Regional
Fishery
Management
Council**

November 1, 2011

VIA EMAIL AND POSTAL MAIL

Lance Smith
Regulatory Branch Chief
Protected Resources Division
National Marine Fisheries Service
Pacific Islands Regional Office
1601 Kapiolani Blvd., Suite 1110
Honolulu, HI 96814
Attn: Proposed False Killer Whale Take Reduction Plan

**Re: Supplemental Comments to the Proposed False Killer Whale Take Reduction Plan
(RIN 0648-BA30)**

Dear Lance:

The Western Pacific Regional Fishery Management Council (the Council) appreciates this opportunity to provide supplemental comments to the National Marine Fisheries Service (NMFS) on the proposed False Killer Whale Take Reduction Plan (TRP)¹. The Council submitted a comment letter in response to this rule on October 14, 2011. Immediately following the public comment close date, the Council received a presentation at the meetings of the Scientific and Statistical Committee (SSC; October 17-19, 2011) and Council (October 19-22, 2011). This supplemental letter is a result of the deliberations at the recent meetings, and is submitted after the close of the public comment period with permission from the Regional Administrator of the Pacific Islands Region.

Overview

The Council offers the following supplemental comments regarding the proposed TRP:

- 1) An alternative approach should be considered in calculating the trigger for the Southern Exclusion Zone closure, using a simple cumulative sum scheme;
- 2) A Bayesian approach should be considered in calculating abundance estimates of false killer whales;

¹ See 76 Fed. Reg. 42082 (July 18, 2011).

- 3) Detailed analyses should be conducted of direct, indirect, and cumulative impacts of the proposed measures on small vessels within the Hawaii longline fishery; and
- 4) A written explanation should be provided to the Council on how the TRP will be developed consistent with the requirements of the Magnuson-Stevens Act.

Alternative Approach for Calculating the Southern Exclusion Zone Trigger

In our initial letter dated October 14, 2011, the Council noted concerns regarding the changes made to the trigger of the Southern Exclusion Zone (SEZ) closure, and urged NMFS to support the consensus measure recommended by the TRT. Specifically, the proposed measure undermined the conditions upon which the TRT agreed to the consensus plan, which were written to ensure, among other things, the following:

- Allow the trigger to be adjusted based on a flexible calculation method, given that a newly calculated PBR is expected to be published in the near future based on the recent HICEAS II survey; and
- Criteria that must be met for the reopening of the SEZ are specified in detail to make the closure more acceptable to the fishery.

However, in the event that the TRT consensus plan cannot be supported, the Council requests that NMFS take into consideration an alternative measure proposed by the Council's SSC Subcommittee and subsequently endorsed by the SSC and Council at the recent meetings. The Council further requests that any alternative measure considered by NMFS, including the SSC Subcommittee proposal presented below, be reviewed by the TRT prior to the publication of the final rule.

The SSC Subcommittee was formed to review the proposed TRP, consider the concerns raised by the TRT, and propose an alternative approach to calculating the trigger for the SEZ closure. In carrying out the task, the Subcommittee considered the following conditions to meet the goals set forth by the MMPA as well as to fulfill the key conditions identified by the TRT:

- Goals of the TRP:
 - Short-term goal: within 6 months of the TRP implementation, reduce mortality and serious injury (M&SI) of the Hawaii Pelagic stock of false killer whales incidental to the Hawaii-based longline fisheries occurring within EEZ to less than the stock's potential biological removal (PBR) level;
 - Long-term goal: within five years of its implementation, reduce the incidental M&SI of the Hawaii Pelagic, Hawaii Insular, and Palmyra Atoll stocks of FKW to insignificant levels (i.e., <10% of their respective PBR levels);
- Allow the trigger to be adjusted in later years if the PBR is updated after the TRP implementation based on the recent HICEAS II survey results; and
- Include specific reopening criteria to accompany the trigger, which was included in the consensus plan drafted by the TRT but was subsequently excluded from NMFS in the proposed rule.

The SSC Subcommittee proposed a simple cumulative sum scheme, based on the statistical process control literature (Manly & MacKenzie 2000, Montgomery 2001)², to monitor the false killer whale M&SI against the PBR (see Appendix A for a detailed description). In this approach, M&SI and PBR are expressed as cumulative sum values, and the SEZ closure is triggered if the cumulative M&SI exceeds the cumulative PBR in any given year. The duration of the SEZ closure is determined by the “PBR equivalents”, or the number of years it takes for the cumulative M&SI to fall below the cumulative PBR.

The Subcommittee’s proposed approach uses a baseline PBR equivalent to the cumulative 5-year PBR level. The 5-year timeframe is used for consistency with the NMFS procedure using a 5-year average M&SI level. The baseline also serves as a buffer for the longline fishery to sufficiently implement all other TRP measures and improve its performance in minimizing false killer whale interactions³. The baseline PBR is calculated as follows:

$$\text{Baseline PBR} = \text{Current PBR at the time of plan implementation} * 5 \text{ years.}$$

After plan implementation, cumulative PBR levels are calculated for each plan year and evaluated against the cumulative extrapolated M&SI. The cumulative PBR levels are calculated as follows:

$$\text{Cumulative PBR for year 1} = \text{Baseline PBR} + \text{Year 1 PBR, and}$$

$$\begin{aligned} \text{Cumulative PBR for subsequent years} \\ = \text{Previous year cumulative PBR} + \text{Current year PBR.} \end{aligned}$$

In any given year after the plan implementation, the SEZ closure is triggered when the cumulative extrapolated M&SI exceeds the cumulative PBR, and the SEZ is reopened when the cumulative extrapolated M&SI falls below the cumulative PBR:

$$\text{Trigger} = \text{Cumulative extrapolated M\&SI} > \text{Cumulative PBR.}$$

$$\text{Reopening criteria} = \text{Cumulative extrapolated M\&SI} < \text{Cumulative PBR.}$$

It should be clearly understood that this cumulative sum approach does not involve taking of more false killer whales than specified by the PBR, or create any loopholes as such. It

² Manly B, Mackenzie D (2000) A cumulative sum type method for environmental monitoring. *Environmetrics* 11: 151-166.

Montgomery D (2001) *Introduction to statistical quality control*. 5th Edition. Wiley and Sons, New York.

³ Implementation of the weak-hook requirement may need a delayed implementation or phase-in period to allow gear suppliers to stock the required hooks and for vessels to switch hooks over a reasonable period of time. In this case, the full effect of the TRP measures would not be reflected in the M&SI levels immediately after the plan implementation. If the cumulative PBR does not include a 5-year baseline, there is a high likelihood of the SEZ closure going into effect and remaining closed for a number of years without any mechanism for reopening. This is counterproductive as it prohibits a true evaluation of the TRP measures. Moreover, the current PBR of 2.5 is calculated based on a population abundance that is outdated and likely underestimated from a 2002 survey that only sighted one group of false killer whales in all of the U.S. EEZ around Hawaii. The 2010 HICEAS II survey had six on-effort sightings of false killer whales, suggesting a much greater population abundance than the 2002 estimate.

provides a better mechanism for implementing the SEZ closure and for its reopening, based on the observed interactions with false killer whales. This reflects the intent of the TRT, which never envisaged a SEZ closure without a clearly defined mechanism for reopening, and proposed the SEZ measure under the full acknowledgement that a new PBR based on an updated abundance estimate will become available shortly after the TRP implementation. These intentions of the TRT were not reflected in the proposed TRP published by NMFS.

Example Scenario

Assume a scenario in which the TRP is implemented with a PBR of 2.5, and an updated PBR of 10 based on the recent HICEAS II is adopted⁴ by year 3 (see Table 1 & Figure 1 in Appendix A). Also assume that other components of the TRP result in moderate reduction of false killer whale interactions by year 3. The rate of M&SI reduction is assumed at approximately 50% as evaluated in the draft Environmental Assessment following implementation of the weak hook measure⁵.

In this scenario, the baseline PBR is 12.5 (current PBR of 2.5 * 5 years), and the year 1 cumulative PBR is 15 (baseline PBR of 12.5 + PBR of 2.5 for year 1). In year 1 of plan implementation, the fishery has two observed M&SI at 20% observer coverage, which extrapolates to 10 M&SI for the entire fishery. Given that the cumulative M&SI of year 1 is equivalent to the extrapolated M&SI, the cumulative M&SI is less than the cumulative PBR. The trigger for SEZ closure is not met in year 1.

In year 2, the cumulative PBR increases to 17.5. Assuming an observed M&SI of two false killer whales, the extrapolated M&SI is 10 and the cumulative M&SI for year 2 becomes 20. The cumulative M&SI now exceeds the cumulative PBR by 2.5, and the SEZ closure is triggered. Given that this scenario assumes that an updated PBR of 10 is implemented for year 3, the SEZ closure will last for one year, as the exceedance of 2.5 is less than one "PBR equivalent".

In subsequent years after the SEZ reopening in year 4, continue to evaluate the cumulative M&SI against the cumulative PBR. In the example scenario, cumulative PBR increases by 10 each year, while the cumulative M&SI increases according to each year's extrapolated M&SI. Assuming that only a single M&SI is observed annually after year 4, the cumulative M&SI will remain below the cumulative PBR for the remainder of the plan years.

Bayesian Approach in Calculating Abundance Estimates of False Killer Whales

The SSC Subcommittee also reviewed and discussed methods to improve the estimation of the PBR, and in particular the estimation of the minimum abundance measure used to derive the PBR. The Subcommittee reviewed the paper entitled "Abundance estimates of false killer whales (*Pseudorca crassidens*) in Hawaii, prepared by Dr. Ray Hilborn of University of Hawaii and submitted to NMFS by the Hawaii Longline Association (HLA) as part of their comments on the Draft 2009 Stock Assessment Report (SAR). The Hilborn analysis evaluated the abundance

⁴ The updated PBR value of 10 was selected for consistency with scenarios developed by NMFS in Appendix I of the Draft EA/RIR/IRFA.

⁵ See p.113 of the Draft EA/RIR/IRFA

of false killer whales in waters around Hawaii using Bayesian methods, and produced an abundance estimate of 2,066 individuals and minimum estimate of 1,329 individuals in the pelagic stock.

In the Final 2009 SAR, NMFS responded to HLA's comments and the Hilborn analysis. In this response, NMFS noted that an adequate rationale was not provided in the analysis for selecting the false killer whale density in waters around the Eastern Tropical Pacific Ocean as a suitable prior for density in waters around Hawaii. However, to our knowledge, no direct communication has occurred between NMFS and Dr. Hilborn regarding this analysis. The Council therefore recommended that NMFS forward the concerns as outlined in the Final 2009 SAR to Dr. Hilborn for his consideration. Further, the Council requests that NMFS explore the use of Bayesian approach in producing abundance estimates for false killer whales and other marine mammals.

Cumulative Impacts of the Proposed Measures on Small Longline Vessels

In the letter dated October 14, 2011, the Council noted that the impacts of the proposed TRP on the fishery was likely underestimated, particularly in terms of impacts to small vessel operators in the Hawaii longline fleet. We reiterate these concerns, as the impacts of the proposed Main Hawaiian Islands (MHI) longline fishing prohibited area and the SEZ closure on small vessel operators were not adequately evaluated in the Draft Environmental Assessment, Regulatory Impact Review, and Initial Regulatory Flexibility Analysis (EA/RIR/IRFA). The proposed regulatory measures such as the weak hook requirement and new closure areas are likely to have much greater impacts on small longline vessel operators and operators that make less-than-average profits. Moreover, the TRT membership did not include any of the small vessel operators in the longline fleet. The Council therefore requests NMFS to conduct a detailed analysis of direct, indirect, and cumulative impacts of the proposed regulatory measures on small vessels within the Hawaii longline fishery.

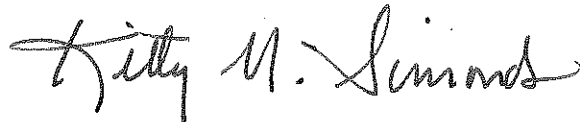
TRP Consistency with Requirements of the Magnuson-Stevens Act

The proposed TRP includes regulatory measures that will add gear requirements to 50 CFR 665.813 and revising the MHI longline fishing prohibited area boundaries in 50 CFR 665.806(c). Regulations under 50 CFR 665 are those pertaining to fisheries in the Western Pacific managed under Fishery Ecosystem Plans (FEPs) prepared by the Western Pacific Fishery Management Council under the Magnuson-Stevens Act (MSA). However, NMFS has not made clear in its proposed rule how it plans to adhere to MSA requirements, including whether the proposed regulations are consistent with the National Standards, and how it plans to adhere to the Council process that is generally required to propose and amend FEPs. The Council has provided these concerns in detail to the Regional Administrator of NMFS Pacific Islands Region in a separate letter dated November 1, 2011. The Council requests that NMFS provide written explanation of how the TRP final rule will be consistent with the MSA requirements.

Conclusions

As outlined above, the Council provides an alternative approach for the SEZ closure trigger, and offers additional comments regarding the proposed TRP, based on recommendations from the recent SSC and Council meetings. The Council requests that NMFS take these comments into consideration, along with our earlier comments, in preparing the final rule. The Council further requests that, if alternative approaches to the SEZ trigger calculation will be considered, those approaches be reviewed by the TRT prior to inclusion in the final rule.

Sincerely,



Kitty M. Simonds
Executive Director

Cc: Michael Tosatto, Regional Administrator, NMFS Pacific Islands Regional Office
Manuel Duenas, Chair, Western Pacific Regional Fishery Management Council
Sean Martin, President, Hawaii Longline Association
Ryan Steen, Stoel Rives LLP

Attachment:

Appendix A "SSC Subcommittee: False Killer Whale Take Reduction Plan Southern Exclusion Zone Trigger Proposal for Alternative Approach"

APPENDIX A

SSC Subcommittee: False Killer Whale Take Reduction Plan Southern Exclusion Zone Trigger Proposal for Alternative Approach

Subcommittee Members:

- Milani Chaloupka
- Pierre Kleiber
- Donald Kobayashi
- Molly Lutcavage
- Council staff lead: Asuka Ishizaki

Introduction:

National Marine Fisheries Service (NMFS) published the proposed False Killer Whale Take Reduction Plan (TRP) on July 18, 2011, one year after a consensus draft plan was submitted by the False Killer Whale Take Reduction Team (TRT). During 2010, NMFS convened four meetings of the TRT to develop the draft plan to reduce false killer whale bycatch in the Hawaii-based longline fleet and to meet the requirements under the Marine Mammal Protection Act (MMPA). The plan includes both regulatory and non-regulatory measures that aim to reduce the number of false killer whale mortalities and serious injuries (M&SI) to less than the potential biological removal (PBR) of 2.5 whales.

One of the proposed regulatory measures is to establish a Southern Exclusion Zone (SEZ) and to specify triggers for closure. NMFS proposes to establish a SEZ that would be closed to deep-set longline fishing upon reaching a specified threshold level (or “trigger”) of observed false killer whale mortalities or serious injuries inside the EEZ around Hawaii. If implemented, the SEZ closure would reduce the area available to longline fishing within the EEZ around Hawaii by approximately 17%¹.

SEZ Trigger Concerns

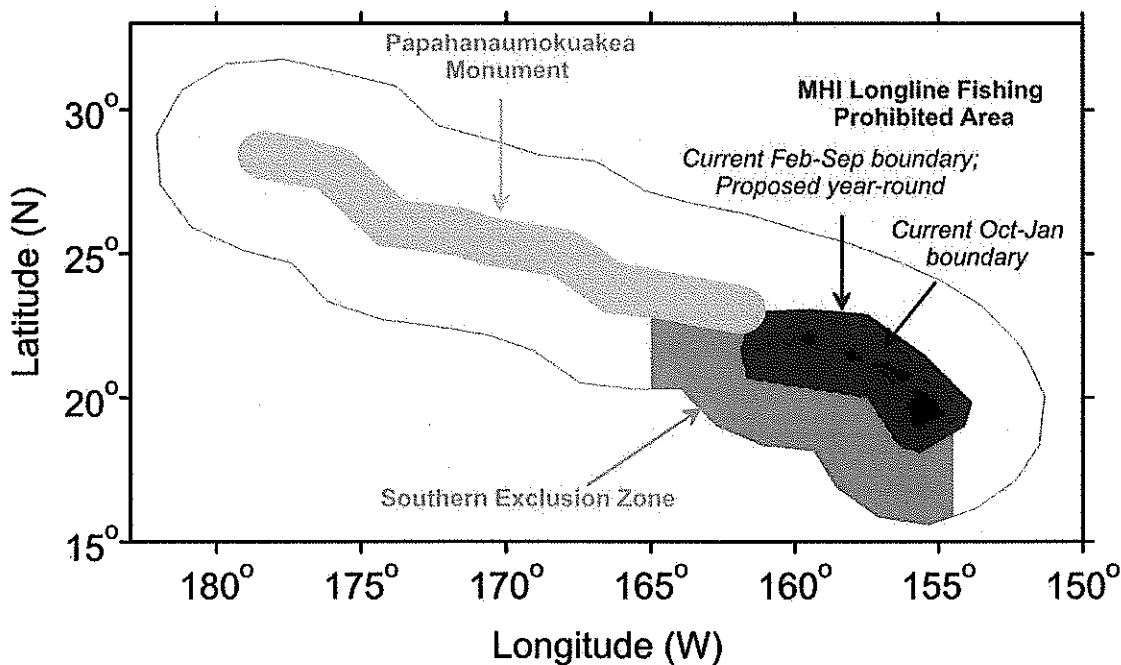
The trigger for the SEZ closure differs substantially from the consensus TRT recommendations. Specifically, the trigger and associated closure are the same as the TRT recommended for the first time the trigger is met, but NMFS proposed a lower trigger for closing the SEZ in subsequent years. This proposed change was made after consideration and analysis of the TRT recommendation and numerous alternate approaches for pairs of triggers and corresponding closures of the SEZ. NMFS believes the TRT recommendation for the SEZ, as written, may not achieve the reductions in take required by MMPA section 118.

At the 5th TRT meeting convened July 27-29, 2011, the Team members noted that the proposed approach for the SEZ triggers ignores the TRT’s intent to have a flexible trigger tied to PBR and would eliminate any potential to adjust the trigger based on any updated PBR. The results of the 2010 HICEAS II cetacean survey is expected to produce an update stock assessment² of the

¹ The proposed rule also includes a regulatory measure to establish a year-round MHI Longline Fishing Prohibited Area that would eliminate the October-January contraction of the existing longline exclusion zone boundary allowing longline fishing closer to the windward shores of the MHI.

² The update estimates and new PBR is expected to be reflected, at the earliest, in the draft 2012 Stock Assessment Report (to be published summer 2012).

pelagic stock of false killer whales, which is the stock of concern in the SEZ. NMFS staff indicated at the meeting that they would consider alternative suggestions for the SEZ trigger calculation if such suggestion were submitted during the proposed rule public comment period.



Subcommittee Task:

A subcommittee of the Council’s Scientific and Statistical Committee (SSC) was formed to review the proposed TRP, consider the concerns raised by the TRT, and propose an alternative approach to calculating the trigger for the Southern Exclusion Zone (SEZ).

In carrying out the task, the subcommittee considered the following conditions to meet the goals set forth by the MMPA as well as to fulfill the key conditions identified by the TRT:

- Goals of the TRP
 - Short-term goal: within 6 months of the TRP implementation, reduce mortality and serious injury (M&SI) of the Hawaii Pelagic stock of false killer whales incidental to the Hawaii-based longline fisheries occurring within EEZ to less than the stock’s PBR level
 - Long-term goal: within five years of its implementation, reduce the incidental M&SI of the Hawaii Pelagic, Hawaii Insular, and Palmyra Atoll stocks of false killer whales to insignificant levels (i.e., <10% of their respective PBR levels)
- Allow the trigger to be adjusted in later years if the PBR is updated after the TRP implementation based on the recent HICEAS II survey results
- Include specific reopening criteria to accompany the trigger, which was included in the consensus plan drafted by the TRT but was subsequently excluded from NMFS in the proposed rule

Proposed Alternative Trigger Calculation:

The subcommittee proposes the following alternative trigger calculation.

Borrowing from the statistical process control literature (Manly & MacKenzie 2000, Montgomery 2001), it is proposed that a simple cumulative sum (CUSUM) scheme be used to monitor annual “mortality and severe injury (or M&SI)” events for the Hawaii pelagic stock of false killer whales.

- 1) At present, PBR = 2.5, so CUSUM this over 5 years ($\text{PBR} * 5 = 2.5 * 5 = 12.5$; “CUSUM 5-year PBR”).
- 2) Use the CUSUM 5-year PBR as the baseline for subsequent monitoring so that the industry is grandfathered a 5-year PBR baseline to implement the procedure. The 5-year timeframe is used for consistency with the NMFS procedure using a 5-year average M&SI level.
- 3) CUSUM the extrapolated M&SI (actual observed M&SI corrected for observer coverage) starting in Year 1 of plan implementation (see Table 1 example scenario).
- 4) If the CUSUM extrapolated M&SI exceeds the CUSUM PBR in any year after plan implementation, then that triggers the SEZ for the number of seasonal closures equivalent to the number of “PBR equivalents” – for example, if the PBR remains at 2.5 and exceedance was 2 M&SIs (ca. one 2.5 PBR units) then SEZ triggered for 1 season, if exceedance = 7 then SEZ triggered for 3 seasons (ca. three 2.5 PBR equivalents) to enable the pelagic stock to “catch-up” or recover to the maximum allowable cumulative M&SI. Graphically expressed, the SEZ closure is triggered when the CUSUM extrapolated M&SI line exceeds the CUSUM PBR line, and reopens when the CUSUM PBR line exceeds the CUSUM extrapolated M&SI line (see Figure 1 example scenario).
- 5) As PBR is updated, then the CUSUM PBR is readily sequentially adjusted.
- 6) Procedure is simple, easy to understand, and readily updated.
- 7) Procedure remains within the overall intention of the NMFS proposal.
- 8) The PBR should account for uncertainty and can be explored using a Monte Carlo simulation approach based on the empirical estimates and variances of N_{\min} and R_{\max} . Then it would be reasonable to use the 0.75 quantile from say 10,000 Monte Carlo trials to provide the estimate for the PBR to be used in this proposed CUSUM monitoring based procedure. This would then far better reflect the substantial uncertainties inherent in any PBR metric for the Hawaii pelagic stock of false killer whales.

References:

- Manly B, Mackenzie D (2000) A cumulative sum type method for environmental monitoring. *Environmetrics* 11: 151-166.
- Montgomery D (2001) Introduction to statistical quality control. 5th Edition. Wiley and Sons, New York.

Table 1. Example scenario using the cumulative sum scheme

Plan Year	PBR	CUSUM PBR	Observed M&SI	Observer coverage	Extrapolated M&SI	CUSUM M&SI
Baseline¹	2.5	12.5				
1	2.5	15	2	20%	10	10
2	2.5	17.5	2	20%	10	20
3	10 ²	27.5	0	20%	0	20
(SEZ closed)						
4	10	37.5	1	20%	5	25
5	10	47.5	1	20%	5	30
6	10	57.5	1	20%	5	35
7	10	67.5	1	20%	5	40
8	10	77.5	1	20%	5	45
9	10	87.5	1	20%	5	50
10	10	97.5	1	20%	5	55

¹ Baseline CUSUM PBR = PBR * 5 years

² An updated PBR of 10 is used in this example, following the scenarios developed by NMFS in Appendix I of the Draft EA/RIR/IRFA

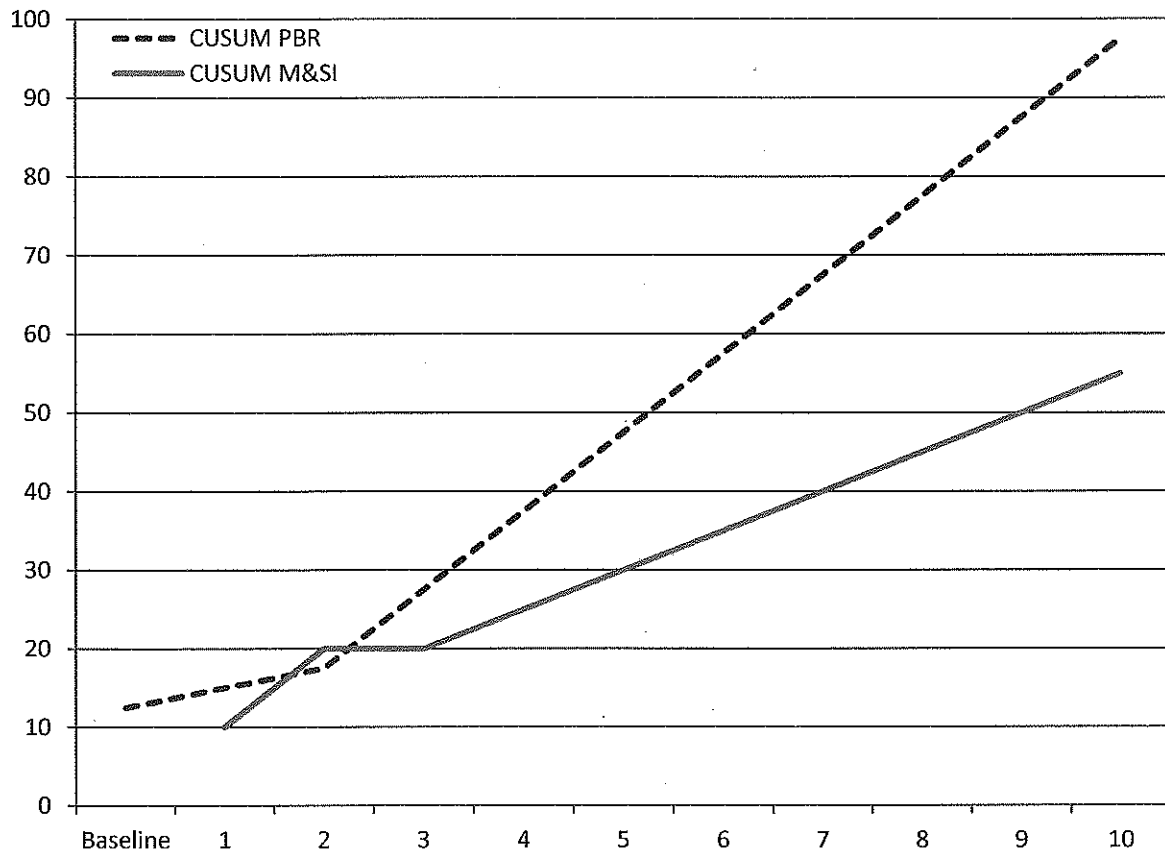


Figure 1. Example scenario using the cumulative sum scheme