 <p data-bbox="215 548 454 593">Agreement on the Conservation of Albatrosses and Petrels</p>	<p data-bbox="502 235 1404 280">Fifth Meeting of the Seabird Bycatch Working Group</p> <p data-bbox="853 291 1404 336"><i>La Rochelle, France, 1-3 May 2013</i></p> <p data-bbox="486 403 1404 504">Review of CCAMLR's Seabird Risk Assessment Process</p> <p data-bbox="542 582 1348 683">Jane McPhee-Frew¹, ACAP Secretariat, CCAMLR Secretariat</p> <p data-bbox="502 694 1396 772">¹ <i>Institute for Marine and Antarctic Studies, University of Tasmania, Hobart, Australia</i></p>
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SUMMARY

Working under a joint CCAMLR – ACAP internship programme, the lead author compared CCAMLR's risk management approach to the incidental mortality of seabirds arising from fishing activities, with the International Standard in risk management (ISO 31000:2009 risk management – principles and guidelines). The original project proposal for the internship had the objective of documenting the process, to allow updating of CCAMLR's seabird risk assessment, and secondly, to identify the criteria for determining when future updates should be undertaken. It became apparent that identifying the process followed in undertaking the risk assessment would not be straight-forward, as key elements of the process had not been documented.

As no clear framework existed, it was decided to use the ISO Standard (the Standard) as a guide, as it offers very broad but also very clear and robust guidelines for managing risk.

Specifically, the Standard was used as a framework to:

1. Determine exactly what took place in the risk assessment process conducted by the Working Group on Incidental Mortality from Fishing (WG-IMAF) and in doing so, collate this information for the use of anyone wanting to undertake a future review, or to update the process;
2. Identify the factors used in the review process that led to CCAMLR's success in reducing seabird bycatch, so that lessons can be learnt from this example;
3. Highlight aspects that require further documentation, so that the process may be readily replicated, either by CCAMLR or other organisations.

RECOMMENDATIONS

The notable aspects that require action with regard to the CCAMLR risk assessment process, especially if it is to be readily replicated, are the lack of rigidly defined risk criteria and the lack of adequate detail when reporting. With these issues in mind, it is

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recommended that:

1. Risk criteria are developed, so that a clearly defined set of criteria are agreed upon and stated explicitly;
2. The process is better documented so that it is transparent and can be replicated; and
3. Reporting requirements are clearly defined, so that the information used is available for future reviews.

Revisión del Proceso de Evaluación de Riesgos de Aves Marinas de la CCRVMA

Como parte del trabajo en un programa conjunto de pasantías de la CCRVMA y el ACAP, el autor líder comparó el método de manejo de riesgos de la CCRVMA respecto de la mortalidad incidental de aves marinas causada por las actividades pesqueras con la Norma Internacional para el manejo de riesgos (ISO 31000:2009 manejo de riesgos: principios y directrices). La propuesta original del proyecto para la pasantía tenía por objeto documentar el proceso, para permitir la actualización de la evaluación de riesgos de las aves marinas de la CCRVMA, y en segundo lugar, identificar los criterios para determinar cuando deben realizarse las futuras actualizaciones. Se observó claramente que la identificación del proceso que se sigue para realizar la evaluación de riesgos no sería directa, ya que no se habían documentado elementos clave del proceso.

Dado que no existía ningún marco claro, se decidió usar la Norma ISO (la Norma) como guía, teniendo en cuenta que ofrece directrices muy amplias pero a la vez muy claras y sólidas para el manejo de riesgos.

En particular, la Norma se usó como marco para:

1. Determinar exactamente lo que sucedió en el proceso de evaluación de riesgos llevado a cabo por el Grupo de Trabajo sobre Mortalidad Secundaria Causada por la Pesca (GdT-IMAF) y al hacerlo, cotejar esta información para que puedan usarla aquellos que deseen realizar una revisión en el futuro, o para actualizar el proceso;
2. Identificar los factores usados en el proceso de revisión que condujeron al éxito de la CCRVMA en la reducción de la captura secundaria de aves marinas, de manera que puedan aprenderse lecciones a partir de este ejemplo;
3. Destacar los aspectos que requieren mayor documentación, de modo que el proceso pueda replicarse fácilmente, ya sea por la CCRVMA o por otras organizaciones.

RECOMENDACIONES

Los aspectos destacados que requieren acción con respecto al proceso de evaluación de riesgos de la CCRVMA, especialmente si éste se debe poder replicar fácilmente, son la falta de criterios de riesgos estrictamente definidos y la falta de un nivel de detalle adecuado en la presentación de informes. Teniendo presentes estas cuestiones, se recomienda que:

1. Se redacten criterios de riesgos, de manera tal que se defina claramente un

conjunto de criterios acordados y declarados en forma explícita;

2. Se documente mejor el proceso, para que sea transparente y pueda replicarse; y
3. Se definan con claridad los requisitos para la presentación de informes, de manera tal que la información usada esté disponible para futuras revisiones.

Passage en revue du processus d'évaluation de la CCAMLR s'agissant des risques qu'encourent les oiseaux marins

Travaillant dans le cadre d'un programme de stage conjoint CCAMLT-ACAP, l'auteur principal a comparé la méthode de gestion des risques de la CCAMLR liés à la mortalité accidentelle des oiseaux marins induite par des activités de pêche et la norme internationale sur le management du risque (ISO 31000:2009 management du risque - principes et lignes directrices). Ce stage avait initialement pour objectif de documenter ce processus, d'actualiser le processus d'évaluation des risques de la CCALMR et d'identifier les critères permettant de déterminer les futures mises à jour. Il était clair que l'identification du processus d'évaluation des risques n'allait pas aller de soi car des éléments-clés du processus étaient manquants.

En l'absence de cadre précis, il a été décidé d'utiliser la norme ISO (la Norme) comme référence. Elle fournit des lignes directrices très claires et très solides dans le domaine de la gestion des risques.

La Norme a été utilisée comme référence pour :

1. Comprendre précisément la manière dont le processus d'évaluation de risques a été mené par le Groupe de travail sur la mortalité accidentelle induite par la pêche et pour mettre ces informations à la disposition de toute personne désireuse de réexaminer ou d'actualiser le processus ;
2. Identifier les facteurs utilisés lors du processus d'examen qui a permis à la CCALMR d'atténuer les captures accidentelles d'oiseaux marins, afin que l'on puisse en tirer des enseignements ;
3. Mettre en lumière des aspects qui doivent être développés ultérieurement afin que ce processus puisse être rapidement reproduit par la CCALMR ou par d'autres organisations.

RECOMMANDATIONS

Les principaux aspects à traiter s'agissant du processus d'évaluation des risques de la CCAMLR, en particulier si ce processus doit pouvoir être reproduit rapidement, sont le manque de critères de risque rigoureusement définis et le manque de précision au moment de la notification. Ayant cela à l'esprit, il est recommandé que :

4. Des critères de risque soient élaborés afin qu'un ensemble clair de critères soit adopté et clairement défini ;
5. Le processus soit mieux documenté afin qu'il soit transparent et puisse être reproduit ; et
6. Les exigences en matière de notification soient clairement définies afin que les

informations utilisées soient disponibles pour des examens ultérieurs.

1. BACKGROUND

1.1. The CCAMLR Seabird Risk Assessment Process

The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR, or the Commission) is often lauded as setting an example for other fisheries management organisations. This is especially the case in regard to its management of the incidental mortality of seabirds resulting from their bycatch in fishing operations. The number of seabirds being caught in CCAMLR fisheries decreased from tens of thousands of birds per annum to almost none, following the implementation of successive CCAMLR Conservation Measures.

In 1993 CCAMLR convened a meeting of experts, one of the outcomes of which was to establish an *ad hoc* working group to advise the Scientific Committee of CCAMLR (SC-CAMLR), initially known as the Working Group on Incidental Mortality Arising from Longline Fishing (WG-IMALF) but later changed to Incidental Mortality Associated with Fishing (WG-IMAF). In response to the concern over potential increases in seabird mortality arising from proposed new and exploratory fisheries, in 1997 WG-IMAF undertook an examination of the risk to seabirds from longline operations in each of the statistical subareas of CCAMLR (SC-CAMLR-XVIII/BG/23; SC-CAMLR, 1999). The risk assessment was reviewed annually, with consideration given to new data regarding seabirds, the fisheries, the success and compliance of Conservation Measures and other relevant information, until 2009 when it was agreed that a review every alternate year was sufficient.

But how exactly, is another organisation to apply CCAMLR's example to its own operational circumstances? In this paper, a retrospective comparison will be made between the CCAMLR IMAF risk management approach with the new International Standard in risk management, ISO 31000:2009 Risk management – Principles and guidelines. The purpose is to use the general risk management guidelines in the Standard as a framework, to explain a real-world example of the successful management of a complex ecological risk, specific to seabirds. Doing this should facilitate the update and continuing improvement of the CCAMLR risk management process as well as enabling its export to, or adaptation by, other organisations for analogous situations.

1.2. ISO Standard 31000:2009

The Standard breaks risk management into three core components: Principles, Framework and Process. For the purpose of this paper, a detailed analysis will only be undertaken of the Process component. The risk management process (Clause 5) is further divided and can be easily conceptualised as a diagram (Figure 1):

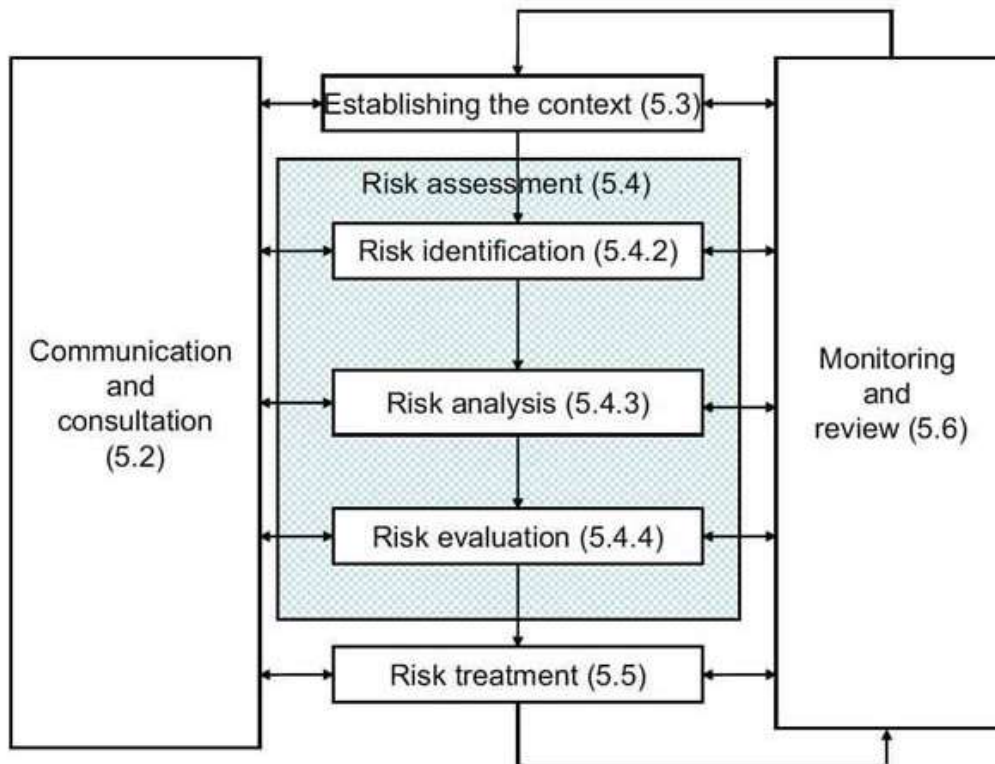


Figure 1 The risk management process.

Further steps within this process, which will be analysed in Section 2, are detailed below.

Process (5)

5.1 General

5.2 Communication and consultation

5.3 Establishing the context

5.3.1 General

5.3.2 Establishing the external context

5.3.3 Establishing the internal context

5.3.4 Establishing the context of the risk management process

5.3.5 Defining risk criteria

5.4 Risk assessment

5.4.1 General

5.4.2 Risk identification

5.4.3 Risk analysis

5.4.4 Risk evaluation

5.5 Risk treatment

5.5.1 General

5.5.2 Selection of risk treatment options

5.5.3 Preparing and implementing risk treatment plans

5.6 Monitoring and review

5.7 Recording the risk management process

2. ANALYSIS OF THE IMAF RISK MANAGEMENT PROCESS

Following is a summary of the risk management process followed by CCAMLR in its management of the incidental mortality of seabirds resulting from fishing activities, assessed in the context of the ISO Standard. A more detailed breakdown, as well as a discussion on the future directions of the risk management process and other potential tools and methods, can be found in the full report of this project (refer to ACAP Secretariat).

2.1. General

2.1.1. *Communication and Consultation*

- Both communication and consultation takes place during all stages of the management process
- Plans for communication and consultation are developed at an early stage – e.g. Commission rules of procedure
- Both internal and external stakeholders are involved, e.g. CCAMLR member delegates, fishers, scientists, etc.
 - Fishing industry representatives involved in risk assessment and control measure development
- Flow of information exists (e.g. WG-IMAF, SC-CAMLR, Commission)
- Distribution of information regarding management decisions and education occurs, e.g. information guides, signage, etc. – getting the decisions to the point of interaction with seabirds

2.2. Establishing the Context

2.2.1. *External context, e.g.*

- Biology of the system – information on seabird distribution, trends, conservation status, etc. is sought from relevant experts.
- Regulatory framework is well established – CAMLR Convention, FAO Code of Practice for Responsible Fisheries, Antarctic Treaty System, etc.
- Fishing Industry factors – fishing patterns (spatial and temporal), techniques, equipment, economic and social drivers of fishing behaviour are provided through industry involvement in relevant meetings.
- Changes and trends in any of these areas are incorporated through submission of meeting documents, input into delegation positions etc.

2.2.2. Internal context, e.g.

- Objectives are articulated in CAMLR Convention– requirement to manage ecosystem impacts; e.g. minimise impact of fishing on seabird populations
- Organisational structure – including WG-IMAF, SC-CAMLR are well established
- CCAMLR policies and procedures –articulated in the CAMLR Convention and other instruments
- Information flows and systems – Scientific Observers provide input to WG-IMAF, which provides advice to SC-CAMLR to Commission, etc.
- Decision making process is clearly articulated in rules of procedure – consensus requirement, etc.
- Capabilities and resources – is provided by Members and CCAMLR Secretariat, e.g. personnel, finances, availability of knowledge, etc.

2.2.3. Context of the risk management process

- Define goals / objectives of risk management activities – these are defined as to minimise the number of individual birds killed (population level objectives too difficult to implement / inappropriate)
- Define responsibilities for and within the risk management process – these are defined in the rules of procedure, in report text and specific decisions made by the Commission
- Define the scope – the process includes longline operations within the CCAMLR area, legitimate (not IUU) fisheries only, and was more recently expanded to include trawl operations
- Define the risk assessment methodologies – in CCAMLR's case this is/was very organic, arose in response to a need rather than being a formalised process developed prior to it commencing

2.2.4. Define risk criteria

- Not clearly defined. Essential to define the criteria more rigidly if the CCAMLR risk management process is to be replicated, by CCAMLR or other organisations
- Used to evaluate the significance of a risk – i.e. used to arrive at the risk rating for each subarea
- How likelihood will be defined – again, not clearly defined. Criteria needed.
- Nature and types of consequences – a bird is killed, several birds are killed, what difference does conservation status make?
- How the level of risk is to be determined – has been defined as a general risk rating for each subarea, see Table 1.

Table 1 From Waugh (2006). Summary data from risk-assessment ratings for the CCAMLR statistical sub-areas in 2005 (data sourced from WG-IMAF 2005 (SC-CAMLR XXIV/BG/26), and BirdLife International 2005 (WG-FSA05-75)). A post hoc attempt to capture the risk criteria used, however other factors, such as IUCN conservation status, were also considered but to what extent has not been recorded.

Area rating	Number of breeding taxa	Proportion world population (max)	Number of taxa foraging	Single taxon foraging time (max)	Multi-taxa average foraging time	Number of CCAMLR Statistical sub-areas with this rating
5 (highest)	7 – 11	19 – 80%	3 – 7	11 – 51%	3 – 29%	4
4	1 – 3	7 – 26%	2 – 7	0.3 – 51%	0.2 – 20%	2
3	0 – 1	0 – 20%	3 – 6	0 – 16%	0 – 7%	5
2	0 – 1	Not estimated	2 – 8	0.3 – 12%	2.4 – 3.8%	4
1 (lowest)	0	–	1	0.3 – 5.2%	0.3 – 5.2%	2

2.3. Risk Assessment

2.3.1. Risk identification

- What can go wrong?
- Aim for a comprehensive list of risks based on events – CCAMLR risk assessment has considered only one (a bird is killed) but assessed it in the different circumstances found in each subarea

2.3.2. Risk analysis

- Develop understanding of the risk – established through scientific literature, review of observer reports etc.
- How does it come about that birds get killed? e.g. generally hooked during the day, have a certain diving range (different for the different taxa), attracted by offal dumping, more likely to encounter birds near their breeding colonies, etc.

2.3.3. Risk evaluation

- This is where the risk criteria comes in! How this step is currently undertaken is not clearly documented
- Based on the predetermined risk criteria, establish priority rankings – this is usually semi-quantitative, e.g. the CCAMLR Five Point scale
- Outcome is a risk rating for each subarea

2.4. Risk Treatment

- CCAMLR's risk treatment plan involves implementing an appropriate suite of control

measures depending on the risk rating of the subarea and the context, including combinations of:

- Setting hooks at night
- Streamer lines
- Closure of the fishery during breeding season
- No offal or trash dumping while conducting fishing operations
- Sinking the baited hook as quickly as possible (weighting)
- Minimum of lighting used during night time operations
- Exclusion zone around islands and coasts
- Cessation of fishing activities for vessels that kill three birds
- Selecting one or more options for modifying risks and implementing those options through adoption of conservation measures
- Selecting the most appropriate risk treatment option involves balancing the costs and efforts of implementation against the benefits
- Usually treatment will change the likelihood of the risk, e.g. weighted lines reduce the likelihood of a bird being hooked
- Changing the consequence of a risk is generally more difficult and often less effective, e.g. policy of making every effort to rescue live birds
- Need to beware of introducing a new risk and/or displacing the risk to another area e.g. increasing bycatch of other species
- Risk treatment involves cyclical process of:
 - Assessing a risk treatment – using appropriate expertise and stakeholder input to develop and assess treatment options, e.g. line weighting experiments, fishing gear designed to exclude / discourage birds, advice on spatial and seasonal fishery closures
 - Deciding whether residual risk levels are tolerable, e.g. fishing is allowed to continue where the mandatory controls for that subarea are implemented because the risk after treatment (residual risk) is considered tolerable
 - If not tolerable, generating a new risk treatment, e.g. risk too high around breeding sites in the breeding season – new treatment is seasonal closure of fishery in that subarea
 - Assessing the effectiveness of that treatment – i.e. how effective is it once it has been implemented, e.g. line weighting experiments, observer reports, compliance investigations, etc.

2.5 Monitoring and Review

- Both monitoring and review are a planned part of the risk management process
 - It can be periodic or ad hoc. IMAF previously met annually, but now meets on a needs basis.
- Purpose of monitoring and review:
 - WG-IMAF review process ensures that controls are effective and efficient in both design and operation
 - Obtains further information when necessary to improve risk assessment
 - Analysing and learning lessons from events (including near-misses), changes, trends, successes and failures – reflected in the adoption of revised conservation measures
 - Detecting changes in the external and internal context, including changes to the risk itself which can require revision of the risk treatments and priorities –

- the submission of meeting papers is one source
- Identifying emerging risks e.g. the review of scientific literature
- CCAMLR has particularly good performance with monitoring and review
 - Understanding of ecology of seabird populations
 - Fishing industry and practices (Scientific Observer Scheme)
 - Review of effectiveness of control measures
 - Compliance with Conservation Measures
- Results should be recorded
 - Externally and internally reported as appropriate. Although reports are provided the information provided is not adequate to determine how the results of the assessment were obtained. This needs to be addressed.
 - Used as input to the review of the risk management framework
- Annual (since 2011 only when considered necessary) review of risk assessment, with consideration given to new information

The purpose of comparing ISO 31000 with the CCAMLR risk management process is in part to allow better review and update of the risk assessment. This is not independent of its potential export to other organisations

2.6 Recording the risk management process

- Risk management activities should be traceable. Apart from the lack of clearly defined criteria and the lack of information in reporting, the CCAMLR risk management process is traceable
- Records provide the foundation for improvement in methods and tools, as well as in the overall process
- There is scope for improvement in CCAMLR's recording of its risk management process
 - Has been comparatively informal up to this point
- Much better recording required if this is to happen, including
 - what has happened – more in-depth descriptions of what exactly has and has not taken place, who was involved, when, etc.
 - what is expected –explicitly defined objectives and risk criteria
 - why – justifications for the decisions made and the methods used

3. CONCLUSION

There are potentially significant benefits to be gained from the transfer of CCAMLR's risk management process for incidental mortality of seabirds to other organisations. The comparison of this process against the ISO Standard clearly identifies its strengths and weaknesses and provides an opportunity to address shortcomings in the process, so that it may be replicated in future. This is an important consideration, as many of the architects of the process are now retired, or are likely to retire shortly.

To achieve this it is necessary that:

1. Risk criteria are developed, so that a clearly defined set of criteria are agreed upon and explicitly stated;
2. The process is better documented so that it is transparent and can be replicated; and
3. Reporting requirements are clearly defined, so that the information used is available for future reviews.

REFERENCES

BirdLife International. 2005. *Analysis of albatross and petrel distribution within the CCAMLR Convention Area: results from the global procellariiform tracking database (WG-FSA05-75)*. Unpublished report to the Working Group on Fish Stock Assessment, Hobart, Australia, 10 to 21 October 2005. <http://www.ccamlr.org/en/wg-fsa-05/75>

International Organization for Standardization. 2009. *ISO 31000:2009 Risk management – Principles and guidelines*. International Organization for Standardization, Geneva.

WG-FSA. 1999. *IMALF assessment of new and exploratory fisheries by statistical area (SC-CAMLR-XVIII/BG/23)*. Unpublished Report to the Eighteenth Meeting of the Scientific Committee, Hobart, Australia, 25 to 29 October 1999.

WG-IMAF. 2005. *IMAF risk assessment of fisheries by statistical area (SC-CAMLR-XXIV/BG/26)*. Unpublished Report to the Twenty-fourth Meeting of the Scientific Committee, Hobart, Australia, 24 to 28 October 2005.

Waugh, S. 2006. *Some thoughts on the CCAMLR risk assessment for seabird-fishery interactions (WG-FSA-06/33)*. Unpublished report to the Working Group on Fish Stock Assessment, Hobart, Australia, 9 to 20 October 2006. <http://www.ccamlr.org/en/wg-fsa-06/33>