



Department
for Environment
Food & Rural Affairs

Submission from the United Kingdom of Great Britain and Northern Ireland (UK) on progress made in the development of a new globally applicable indicator of Protected Area Management Effectiveness

Overview

- This submission provides information on a proposed indicator for measuring protected area (PA) and Other Effective Conservation Measures (OECM) management effectiveness with a fundamental focus on achievement of conservation objectives.
- The indicator has been developed with support from the governments of UK, Canada and Costa Rica, to assess how effective PA management is, in a proportionate way that has global application across marine and terrestrial ecosystems.
- The indicator is proposed as a component indicator which could be used with indicators on spatial coverage of PAs and OECMs to inform a single overall headline indicator.
- The indicator builds on the existing OSPAR Regional Sea Convention approach, successfully applied for the past four years across all MPAs in the NE Atlantic.

1 Introduction

Enhancing the quality of protected areas (PA) depends on effective management which delivers stated conservation objectives. As such, consideration of PA effectiveness is central to assessing delivery of these conservation objectives. While the implementation of management measures is generally relatively straightforward to assess due to their 'action' focussed nature, the assessment of the actual effectiveness of these measures in achieving the conservation objectives of PAs are 'outcome' focussed and so are more difficult to assess.

The current proposed indicator for assessing PA management effectiveness for the Convention for Biological Diversity's post-2020 global biodiversity framework is based on the Protected Area Management Effectiveness (PAME) framework and utilises the World Database on Protected Areas (WDPA). Information on PAME assessments is currently stored in the Global Database on Protected Area Management Effectiveness, which stores reported information on whether a PA has a management effectiveness assessment completed or not. Whilst this is a key starting point, it does not provide an assessment of how effective a PA is considered to be. The indicator presented here is designed to be applicable at the national and global level to assess PA effectiveness with a strong focus on achievement of conservation objectives.

2 The approach

The proposed indicator has used the existing **OSPAR Regional Sea Convention** four question approach as the foundation for its development. This qualitative approach has been successfully applied for the past four years across all MPAs in the NE Atlantic.

To develop a quantitative indicator each of the four OSPAR questions were converted into metrics (Table 1) and a guidance list of definitions to support each category of response produced.

Table 1 Corresponding OSPAR questions to Version 4.0 of PA Management Effectiveness Indicator

| OSPAR questions | Corresponding PA Indicator metrics |
|--|---|
| Is the MPA management documented? | c) Is management information documented? 2 = Yes, 1 = Partially, 0 = None, 0 = Unknown |
| Are the measures to achieve the conservation objectives being implemented? | d) Are management measures being actively implemented? 2 = Yes, 1 = Partially, 0 = None, 0 = Unknown |
| Is monitoring in place to assess if measures are working? | e) Is Ecological/Environmental Monitoring in place? 2 = Yes, 1 = Partially, 0 = None, 0 = Unknown |
| Is the MPA moving towards or has it reached its conservation objectives? | f) Is the PA achieving its conservation objectives? 2 = Fully, 1 = Partially, 0 = No, 0 = Unknown |

To further support the key focus of the indicator to assess **how** effective PA and OECM management is (in terms of achievement of conservation objectives) an additional four metrics were added to the indicator. These were to:

- Understand the governance type of the PA
- Understand the type of PA
- Understand the level of confidence in achievement of conservation objectives
- Apply confidence to conservation objective achievement

In addition to the individual metrics, it was necessary to apply weightings to the metrics in order to attribute the differences between community led PAs and government led PAs. For example, a lower weighting is proposed for community led PAs for metrics c) and e) (documentation of management information and monitoring, respectively) considering a likely more limited resource than government led PAs. While a higher weighting was applied to implementation of management measures for community led PAs due to the likelihood of their measures being implemented more quickly when compared to the several steps required for government led PAs.

Trialling the Indicator

The applicability of this indicator in different countries and at a global scale to both marine and terrestrial PAs and OECMs is crucial. To date the indicator (v4.0) has been trialled using data from Canada, Costa Rica and the NE Atlantic via OSPAR (Germany, Spain, Sweden and the UK). Key improvements from these case study trials included:

- Addition of 'NA' categories to account for a) PA types b) PA Governance types not included within the IUCN categories for which these response categories were based on;
- Reduction in level of detail required and updating of supporting definition to understand the degree of monitoring in place (metric e);
- Broadening of confidence categories (metric g) to better reflect levels of detail provided within existing PAME assessments

3 Next Steps

The initial development and the trialling of the indicator has demonstrated the potential application of this indicator globally and as highlighted several key next steps to continue its development. The next steps are as follows:

1. *Trial the indicator using additional areas, PA types, OECMS and governance types*
While the indicator has been trialled using data from Canada, Costa Rica, Germany, Spain, Sweden and United Kingdom (the latter four countries in the context of OSPAR), trialling the indicator using data from other countries and including other governance types (e.g. shared governance) and PA types (e.g. OECMs) would be beneficial to inform further development of the indicator.
2. *Review and refine supporting definitions for the indicator to improve clarity*
With further iterations of the indicator a review and refining of the supporting definitions is required to ensure they are globally applicable to both PAs and OECMs and are clearly understandable.
3. *Explore using PAME data alongside additional sources to trial the indicator*
The initial trialling focussed on minimising effort for countries to complete this global indicator, by using existing PAME assessments. However, these case studies and initial trialling of the indicator has highlighted the need to explore the use of additional data sources.
4. *Review application of weightings during further testing*
Further consideration is needed to ensure the application of weightings by Governance type sufficiently reflects the nature of PA with particular efforts needed around OECMs and how shared and private governance fit within these weightings.
5. *Integrate this proposed component indicator with two other component indicators (PA coverage and OECM coverage) to create a headline indicator for coverage and effectiveness of PAs and OECMs.*

Annex 1 – Development of a Global Indicator for Protected Area Management Effectiveness: Progress Summary Report November 2021



**JNCC Report
No. 703**

Development of a Global Indicator for Protected Area Management Effectiveness: Progress Summary Report November 2021

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1 Introduction

. In addition to increasing protected area coverage, it is essential that we enhance the biodiversity value of Protected Areas (PAs) by ensuring they deliver on their conservation objectives. As such, consideration of PA effectiveness is central to assessing delivery of these conservation objectives. While the implementation of management measures is generally relatively straightforward to assess due to their 'action' focussed nature, the assessment of the actual effectiveness of these measures in achieving the conservation objectives of PAs are 'outcome' focussed and so are more difficult to assess.

The current proposed indicator for assessing PA management effectiveness for the Convention for Biological Diversity's post-2020 global biodiversity framework is based on the Protected Area Management Effectiveness (PAME) framework and utilises the World Database on Protected Areas (WDPA). Information on PAME assessments is currently stored in the Global Database on Protected Area Management Effectiveness, which stores reported information on whether a PA has a management effectiveness assessment completed or not. Whilst this is a key starting point, it does not provide an assessment of how effective a PA is considered to be. To address this gap, this project has focused on the development of an indicator applicable at the global level to assess PA effectiveness. It is proposed that this PA management effectiveness component indicator would be assessed alongside indicators on spatial coverage of PAs and Other Effective Conservation Measures (OECMs) to inform a single overall headline indicator statement in response to PA reporting.

While full details of the development of this indicator will be made available in a final project report to be published in 2022, here we seek to provide a summary of the work done to date and the key next steps which are required to further the development of the PA management effectiveness indicator in the coming months.

2 Existing Approaches to Assessing Protected Area Effectiveness

The starting point for the development of a PA management effectiveness indicator was a review of current practices that are globally prevalent. Whilst variations exist at a more local and regional level, our review concluded that the assessment of PA management effectiveness largely has foundations in two primary methodologies; the Management Effectiveness Tracking Tool (METT) and the Protected Area Management Effectiveness (PAME) approach (Section 2.1). As a slight differentiation but of relevance due to work undertaken in the UK and the North-east Atlantic, we also reviewed the approach undertaken by the Regional Sea Convention for the conservation of the marine environment across the North-east Atlantic (OSPAR, Section 2.2).

2.1 The Protected Area Management Effectiveness (PAME) Framework and the Management Effectiveness Tracking Tool (METT)

The Protected Area Management Effectiveness (PAME) framework provides a set of methods for 'the assessment of how well an area is being managed – primarily the extent to which it is protecting values and achieving goals and objectives' (Hockings *et al.* 2006). Each assessment is based on the World Commission on Protected Areas (WCPA) framework, which can largely be summarised into 6 elements: context, planning, inputs, processes, outputs and outcomes (see Table 1).

Table 1. Summary of the IUCN-WCPA framework (Lacerda *et al.* 2007).

| Elements of evaluation | Explanation | Criteria that are assessed | Focus of evaluation |
|-------------------------------|--|--|--------------------------------|
| Context | <i>Where are we now?</i> Assessment of importance, threats and policy environment | <ul style="list-style-type: none"> - Significance - Threats - Vulnerability - National context - Partners | Status |
| Planning | <i>Where do we want to be?</i> Assessment of protected area design and planning | <ul style="list-style-type: none"> - Protected area legislation and policy - Protected area system design - Reserve design - Management planning | Appropriateness |
| Inputs | <i>What do we need?</i> Assessment of resources needed to carry out management | <ul style="list-style-type: none"> - Resourcing of agency - Resourcing of site | Resources |
| Processes | <i>How do we go about it?</i> Assessment of the way in which management is conducted | <ul style="list-style-type: none"> - Suitability of management processes | Efficiency and appropriateness |
| Outputs | <i>What were the results?</i> Assessment of the implementation of management programmes and actions; delivery of products and services | <ul style="list-style-type: none"> - Results of management actions - Services and products | Effectiveness |
| Outcomes | <i>What did we achieve?</i> Assessment of the outcomes and the extent to which they achieved objectives | <ul style="list-style-type: none"> - Impacts: effects of management in relation to objectives | Efficiency and appropriateness |

There are more than 70 methods and toolkits currently developed for PAME assessments, catering to the wide range of protected area (PA) sizes, habitats and governance.

Regardless of specific methodology, all assessments include the following 5 key steps:

1. Compile existing relevant data

2. Identify (and undertake) any simple actions that can help fill any gaps in the existing data
3. Identify the gaps in the existing data that will require more extensive or costly actions
4. Analyse data collected in steps 1 and 2
5. Adapt and improve management to fill in gaps identified

The most frequently used methods are the Management Effectiveness Tracking Tool (METT), which is a site-based assessment tool (Stolton *et al.* 2021) and Rapid Assessment and Prioritization of Protected Area Management (RAPPAM), which is designed to assess a whole system (Ervin. 2003). A summary of the assessments used globally is available¹.

All PAME assessment tools are designed to be adapted to suit the assessor's needs and goals. This is both advantageous in the flexibility it offers and disadvantageous in the inconsistency of results globally.

Benefits of PAME assessments: The key benefit of PAME assessments is that they provide a baseline for uniform reporting. All assessment methodologies are fully adaptable to suit individual needs, the assessments do not need large amounts of resources to complete, enabling all, from individuals to governments, to undertake them. They can be used as baseline assessments to help guide monitoring and management objectives.

The assessments do not require expert input necessarily and can fill the need for quick and easy self-evaluation. Reports show that many of these assessments work best if used iteratively with a wide base of PA users to balance potential bias issues in the rapid assessments.

Challenges of PAME assessments: PAME assessments are largely undertaken using qualitative data, which causes results to vary based on local opinion which can result in lower confidence of outputs. The assessments are generally weak on measuring biodiversity objectives and this could potentially result in inefficient assessment of the achievement of conservation objectives.

Improvements needed in PAME assessments: While all assessments are adaptable, there is a pressing need for more detailed assessments to support a global evidence base and local implementation. Many assessments rely on the assessor filling in supplementary information with supporting evidence underlying their assessment. However, this very often does not happen and there is a need for more detailed information to be provided, to clarify goals and support the development of well-prepared workshops to share knowledge and build capacity.

The different governance structures must be considered for global assessments such as PAME. Bottom-up community led conservation plans will vary on approach and available resources when compared to top-down governmental management's resources and management outputs.

2.2 OSPAR

OSPAR (Oslo/Paris Convention for the Protection of the Marine Environment of the North-East Atlantic) is the mechanism by which 15 Governments and the EU cooperate to protect the marine environment of the North-East Atlantic. The area is split into five regions and the

¹ <https://www.protectedplanet.net/en/thematic-areas/protected-areas-management-effectiveness-pame?tab=Results>

Contracting Parties are Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom and the European Union.

At the 2010 OSPAR Ministerial Meeting in Bergen, Norway, a commitment was made by OSPAR Ministers to ensure that, by 2016, the OSPAR Marine Protected Area (MPA) network was well-managed through the implementation of measures that achieve conservation objectives of a protected feature within OSPAR MPAs. This was supported by the annual reporting of progress and later in 2013 it was agreed the production of the Status Report of the OSPAR Network of MPAs would be produced every 2 years.

The OSPAR Intersessional Correspondence Group on Marine Protected Areas (ICG-MPA) developed a questionnaire-based approach to assess the management status of OSPAR MPAs. Whilst there is no formal agreement on what constitutes 'well managed', the questionnaire poses four key questions that reflect progress around the implementation cycle of an MPA:

- A. Is MPA management documented?
- B. Are measures to achieve conservation objectives being implemented?
- C. Is monitoring in place to assess if measures are working?
- D. Is the MPA moving towards or has it reached its conservation objectives?

The Contracting Parties respond to each of the four questions as: Yes, Partial, No, and Unknown. Each question also has an accompanying 'comments' sections which can be used to add additional information or to justify answers. Guidance documents¹ are provided to aid consistency in reporting. Where the Contracting Parties do not respond to the questions, 'No response' is recorded.

The results of the management status questionnaire are fed into the Status Report on the OSPAR Network of Marine Protected Areas (MPAs). The UK, on behalf of the ICG-MPA, collate the results from the Contracting Parties and write the chapter on management effectiveness.

For the 2021 Status Report, a fifth section was added to the questionnaire; asking the Contracting Parties to provide a confidence score for each site's management status. The aim of this was to supplement the degree of understanding underpinning the assessment.

As the OSPAR MPA management status reporting only refers to MPAs, which are managed solely by governments, it is currently unknown as to whether the methodology can be used to indicate the effectiveness of management on other types of PAs. Globally, PAs vary due to three main reasons: geographical space, governance, and management strategies. A global PA management effectiveness indicator needs to be flexible enough to account for the wide range of characteristics that different types of PA possess. The IUCN describes the types of areas through their Protected Area Categories System (Dudley, 2013).

3 Development of a Global Protected Area Management Effectiveness Indicator

The OSPAR approach (detailed in Section 2.2) to assessing PA management effectiveness has been successfully applied across all MPAs in the NE Atlantic for the past four years. This simple four question approach as well as lessons learnt from existing PAME methodologies has formed the basis of the development of this new globally applicable quantitative indicator for assessing PA management effectiveness.

Initially each of the four OSPAR qualitative questions were translated using expert judgment to quantitative metrics (*Table 3*). Several approaches were considered to determine the most suitable way to apply a quantitative scale and how to combine these metrics to an overall score. Approaches ranged from a very simple scoring category with two or three options for each metric which would then be summed to create the overall indicator score, to a more advanced quantitative assessment where each metric would be based on a more direct score i.e. number of features meeting conservation objectives with weightings then applied.

Ultimately it was decided that a combination of the simple and advanced approach was most suitable for this indicator. To date the indicator has been through four iterations with the key changes (v1 to v4) presented in **Error! Reference source not found.**; this development has seen the indicator change from being composed of four metrics to eight, to facilitate the calculation of a more applicable final score for each PA or OECM. Greatest emphasis has been placed on achievement of conservation objectives and weightings applied in order to attribute the differences between community led PAs and Government led PAs (See *Figure 2*). Version 4 of the PA Management Effectiveness Indicator is presented in **Error! Reference source not found.**, while definitions for each of the categories are presented in *Table 3*. Further detail on this development will be presented in the 2022 project report.

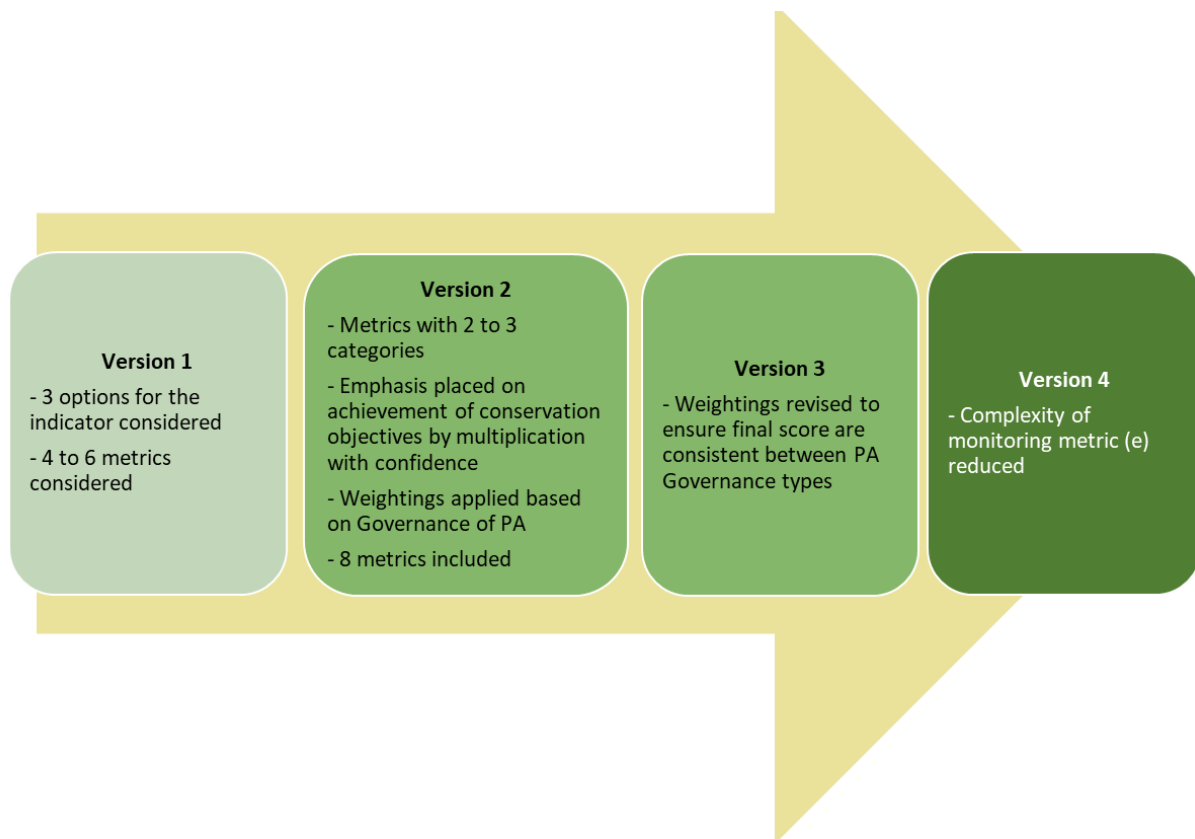


Figure 1 Key changes made to Indicator

Community led protected areas: Less weighting was put to documentation and monitoring as community-led areas may be more limited by available resources than government led organisations. Equally many community led protected areas can take advantage of reduced bureaucratic hurdles and increased community connectivity and impose management measures more quickly; the smaller scale of community led protected areas also improves the chance of successful management without extensive monitoring programmes. Due to this, management measures was given a higher weighting.

Government led protected areas: Governments often have statutory requirements to produce documentation and as such this is given higher weighting than in community-led PAs; however both management and monitoring are given higher weightings as these are the course toward successful protection of a PA.

Figure 2 Evidence supporting decisions made for weightings based on governance type of PA.

Table 2 Corresponding OSPAR questions to Version 4.0 of PA Management Effectiveness Indicator and associated definitions for global application

| OSPAR four questions | Corresponding PA Indicator metrics | Metric Categories | Definition |
|----------------------|---|---|---|
| N/A | a) What is the governance type of the PA? | | Based on IUCN Categories: |
| | | Governance by Government | Governance by Government |
| | | Shared Governance | Shared governance by diverse rights holders and stakeholders together |
| | | Private Governance | Governance by Private entities |
| | | Governance by Indigenous peoples and/or local communities | Governance by indigenous peoples and local communities |
| | | Unknown | Governance type is unknown |
| N/A | b) What is the type of PA? | | Based on IUCN Categories: https://www.iucn.org/theme/protected-areas/about/protected-area-categories and OECM definition CBD/COP/DEC/14/8/2018: Decision adopted by the conference of the parties to the convention on biological diversity. IUCN-WCPA Task Force on OECMs, (2019). Recognising and reporting other effective area-based conservation measures. Gland, Switzerland: IUCN. |
| | | Strict Nature Reserve | Category Ia: Strict Nature Reserve Protected areas that are strictly set aside to protect biodiversity and also possibly geological/geomorphological features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values. Such protected areas can serve as indispensable reference areas for scientific research and monitoring. |
| | | Wilderness Area | Category Ib: Wilderness Area Protected areas that are usually large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition. |
| | | National Park | Category II: National Park Large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities. |
| | | Natural Monument | Category III: Natural Monument or Feature Protected areas set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value. |
| | | Habitat/Species Management | Category IV: Habitat/Species Management Area Protected areas aiming to protect particular species or habitats and management reflects this priority. Many category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category. |

| | | | |
|---|---|--|--|
| | | Protected Landscape/Seascape | Category V: Protected Landscape/Seascape A protected area where the interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values. |
| | | Protected Area with Sustainable Use of Natural Resources | Category VI: Protected area with sustainable use of natural resources Protected areas that conserve ecosystems and habitats, together with associated cultural values and traditional natural resource management systems. They are generally large, with most of the area in a natural condition, where a proportion is under sustainable natural resource management and where low-level non-industrial use of natural resources compatible with nature conservation is seen as one of the main aims of the area. |
| | | OECM | A geographically defined area other than a Protected Area, which is governed and managed in ways that achieve positive and sustained long-term outcomes for the in situ conservation of biodiversity, with associated ecosystem functions and services and where applicable, cultural, spiritual, socio-economic, and other locally relevant values (CBD, 2018; IUCN, 2019)). |
| Is the MPA management documented? | c) Is management information documented? | | Adapted from OSPAR. |
| | | 2 = Yes | PA has management documentation that is in use, publicly available. |
| | | 1 = Partially | PA has associated management documentation and/or management documentation which is drafted but not yet in use |
| | | 0 = No | PA has no associated management documentation that is in use or publicly available |
| | | 0 = Unknown | It is not known if management documentation is in place. |
| Are the measures to achieve the conservation objectives being implemented? | d) Are management measures being actively implemented? | | Adapted from OSPAR |
| | | 2 = Yes | All required measures are implemented |
| | | 1 = Partially | Some of the required measures are implemented or are in the process of being implemented |
| | | 0 = No | No required measures are being implemented. |
| | | 0 = Unknown | It is not known if management measures are being implemented. |
| Is monitoring in place to assess if measures are working? | e) Is Ecological/Environmental Monitoring in place? | 2 = Yes | Regular direct site condition monitoring |
| | | 1 = Partially | Compliance and/or proxy monitoring only |
| | | 0 = No | No monitoring |
| | | 0 = Unknown | It is unclear what monitoring is in place |
| Is the MPA moving towards or has it reached its conservation objectives? | f) Is the PA achieving its conservation objectives? | 2 = Fully | All conservation objectives are being met. |
| | | 1 = Partially | Some but not all of the sites conservation objectives are being met. |
| | | 0 = No | PAs conservation objectives are not being met. |
| | | 0 = Unknown | No evidence is available to show if the site is achieving its conservation objectives |
| Confidence assessment | g) What level of confidence is associated with achievement of conservation objectives? | 3 = High | There is a significant body of high quality and reliable evidence supporting the conclusion that the protected area is, is partially, or is not moving towards or achieving its conservation objectives. Evidence is exclusively based on the following: • Three or more data sources from site condition or compliance monitoring of high quality or reliability. Note: high quality data generally have high quality assurance, there is high confidence in analysis, and/or at least one dataset is less than 6 years old. |

| | | | |
|-----|--|--------------|---|
| | | 2 = Moderate | <p>There is some evidence supporting the conclusion that the protected area is, is partially, or is not moving towards or achieving its conservation objectives.</p> <p>Evidence is exclusively based on one or more of the following:</p> <ul style="list-style-type: none"> • More than one data source from site condition or compliance monitoring of moderate quality or reliability; AND/OR • Expert judgement – a thorough understanding of how the condition of the site and any protected features may be impacted by ongoing activities (e.g. from local knowledge and/or community science). <p>Note: moderate quality data generally have moderate quality assurance, there is moderate confidence in analysis, and/or data are over 6 years old.</p> |
| | | 1 = Low | <p>There is limited evidence supporting the conclusion that the protected area is, is partially, or is not moving towards or achieving its conservation objectives.</p> <p>Evidence is based on one or more of the following:</p> <ul style="list-style-type: none"> • A single data source from site condition or compliance monitoring of any quality and reliability OR more than one data source from site condition or compliance monitoring of low or unknown quality or reliability; AND/OR • Modelled data of low or unknown quality or reliability as an indication of site condition where ground-truth data are unavailable; AND/OR • Expert judgement – a basic understanding of how the condition of the site and any protected features may be impacted by ongoing activities (e.g. from local knowledge and/or community science). <p>Note: low quality data generally have low quality assurance, there is low confidence in analysis, and/or data are over 6 years old.</p> |
| N/A | h) Confidence in achievement of conservation objectives | f) * g) | <p>Questions f and g are multiplied to give the most weighting to sites which are fully achieving their conservation objectives where this is based on high confidence in the evidence providing the assessment.</p> |

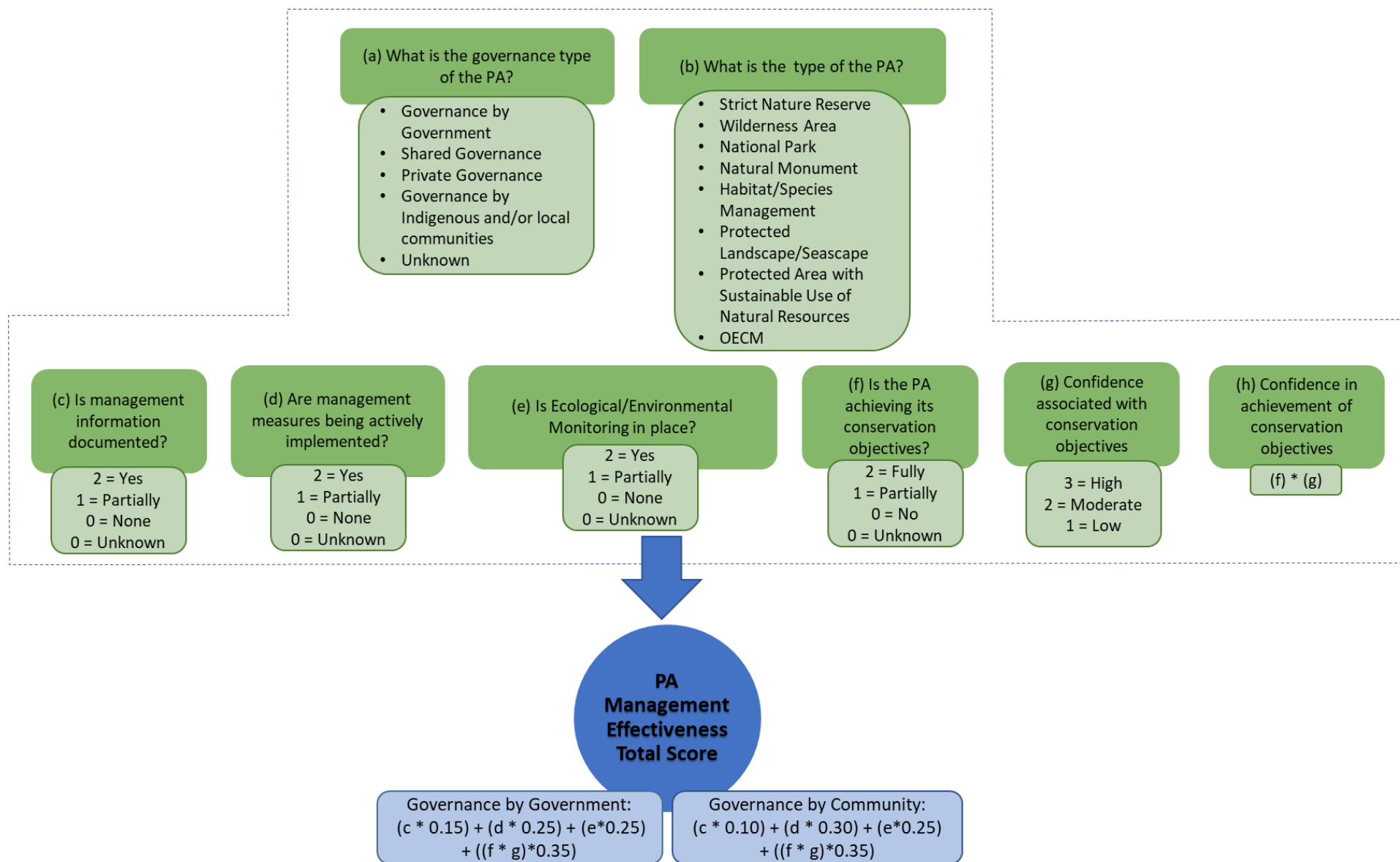


Figure 3 Version 4 of the Protected Area Management Effectiveness Indicator for global application. Note (a) are IUCN categories and (b) IUCN and CBD. Weightings presented for Governance type of PAs require further investigation for Shared and Private Governance categories which will be addressed in the next version of the indicator.

4 Trialling the approach

It is critical that the indicator for assessing PA management effectiveness is adaptable to existing practices and approaches in a broad range of global contexts and therein reducing the reporting burden on countries. As such, part of our work to date has been trialling the approach presented in this report on real world examples; the North East Atlantic (OSPAR data, Section 4.1), Canada (Section 4.2) and Costa Rica (Section 4.33).

Two different approaches to trialling the indicator were taken. For the Canadian and North East Atlantic/OSPAR case studies, the data was trialled by JNCC. For Costa Rica, the indicator was trialled directly by Costa Rica's national environmental agency: Sistema Nacional de Áreas de Conservación (SINAC). The use of these two different approaches in themselves led to useful outputs in terms of considerations for how the indicator is used in the future, with each being further explored in the following sections.

4.1 North East Atlantic (OSPAR)

The North East Atlantic region has 568 Marine Protected Areas that have been reported to OSPAR for management status purposes in 2021. As detailed in Section 2.2, in 2021, an additional section was added to the Marine Protected Areas questionnaire for the status report, asking the Contracting Parties to provide a confidence score for each site's management status. The aim of this addition was to help supplement the degree of understanding underpinning the assessment. However this resulted in only 284 MPAs (Germany, Spain, Sweden and the United Kingdom) being reported with full responses and therefore included in this case study. As there was no data regarding confidence scores prior to 2021, an investigation was also undertaken to see whether the historical data could be used in this PA effectiveness indicator.

The OSPAR case study could only review one type of PA (MPAs) and could only review one type of governance (governance by government) as these were the only characteristics of the MPAs reported to OSPAR. Because of this, the OSPAR dataset would not be able to give an insight into the 'community-led' metric indicator, or other types of protected areas and OECMs.

Following the OSPAR case study the indicator was updated from Version 3 to Version 4 (see Figure 1). The change occurred when completing metric (e). In Version 3, the metric response ranges from 3 – 0, with a response of 3 for "*Regular monitoring, good spatial resolution, time series is or will be ≥ 3 years*", a response of 2 for "*Good spatial resolution, time series is or will be ≤ 3 years*", a response of 1 for "*Coarse resolution, limited or proxy data only*", and 0 for "*None / Unknown*". The level of detail needed to answer the question was not available in the OSPAR dataset and therefore it could not be answered. As the time-series information was not available, the responses for metric (e) were updated to Version 4 of the metrics.

As there are three years' worth of OSPAR MPA management status reporting, a review of temporal data was undertaken to see whether the sites could be directly compared. For the 2016 and 2018 data, the question about confidence scores was not yet introduced therefore the indicator calculations were adapted (see below). The adapted indicator scoring was also used for the MPAs within the 2021 dataset that did not provide information on confidence assessments.

$$\text{Indicator equation for government led PAs and OECMs:} \\ (c * 0.15) + (d * 0.25) + (e * 0.25) + ((f * g) * 0.35)$$

Indicator equation for government led PAs adapted for data that does not include confidence scores:

$$(c * 0.15) + (d * 0.25) + (e * 0.25) + (f * 0.35)$$

Table 3 PA Management Effectiveness Indicator metrics

- (a) What is the governance type of the PA?
- (b) What is the type of PA?
- (c) Is management information documented?
- (d) Are management measures being actively implemented?
- (e) Is Ecological/Environmental Monitoring in place?
- (f) Is the PA achieving its conservation objectives?
- (g) What level of confidence is associated with achievement of conservation objectives?

To compare OSPAR 'MPAs' management effectiveness over time, a subset of sites were randomly selected from each Contracting Party. MPAs were only selected if they had full management status responses from all reporting years. As the largest differences in the indicator scores were between 2018 and 2021, a comparison of the two indicator equations was undertaken to see how much of a difference including the confidence scores would make. It was important to see how the results differed when inputting the same MPA data into the two different indicator equations, and if the two indicators could be used to directly compare the management effectiveness over time.

As the total scores of the two indicators differed at this stage, the results could not be directly compared across the board. Key observations are as follows:

- OSPAR MPAs that had low confidence (scored 1) could be directly compared in a time series as the introduction of this question did not provide an overall difference to the result (the maximum score is the same)
- MPAs that had differences in their indicator scores occurred mainly due to the introduction of the confidence question to the metrics. The greatest difference occurred with a confidence score of 3. Sites such as Niedersächsisches Wattenmeer (1.65 to 2.35), Havstensfjord (0.55 to 1.75) and Kosterfjorden-Väderöfjorden (1.65 to 2.35) had the largest increases in their metric scores between 2018 and 2021 reporting years.
- For the 2021 dataset, the index of PA management effectiveness ranged from 0.4 – 3.4 (covering the full range of the total available weightings and averaged 1.48).

The historical datasets from 2016 and 2018 for OSPAR MPA management status reporting could not be incorporated into the final indicator. The data required for metric (g), confidence scores, was not required for reporting prior to the 2021 reporting year. Therefore it is recommended that the datasets from 2016 and 2018 are not used in further application of the Global Indicator for Protected Area Management Effectiveness.

Metric (b) could be answered by using the OSPAR electronic nomination proformas as these contain the IUCN category attributes within the GIS shapefiles. Additional information that could be used as evidence for indications of management effectiveness within this indicator or within parallel component indicators include the size of the MPAs and time since designation. The designation year of OSPAR MPAs is included in the dataset however the size of the MPAs currently is not.

4.2 Canada

Canada has 9000 PAs, including a network of 54 National Wildlife Areas (NWAs) and 92 Migratory Bird Sanctuaries (MBSs) that were designated to protect wildlife and migratory bird habitats. These NWAs and MBSs are under the remit of the Canadian Wildlife Service (CWS) at the government department Environment and Climate Change Canada (ECCC). In order to provide recommendations for PA management and act as a baseline for future assessments, CWS conducted PAME assessments on 80 % of the NWA and MBS network in 2016 and 2019-2020. These PAs were terrestrial and marine and did not include OECMs.

These PAME assessments were a modified form of the Management Effectiveness Tool (METT), which consisted of 30 questions with possible answers and their associated scoring. The questionnaires were distributed to PA managers, which filled in the questionnaires for all sites in their region or subregion, using their personal knowledge, history and experience.

In order to trial the PA Management Effectiveness indicator (v4) and develop it further for global application, we determined which PAME assessment question(s) and answers best conformed with each PA indicator metric. We then transferred the data obtained from the PAME assessments into the PA indicator spreadsheet, applied a scoring system translation, then used the formulas to calculate an index of PA management effectiveness for each PA. The index of PA effectiveness appeared to perform well. Among individual PAs the index ranged from 0 to 3.4 (covering the full range of the total available weighting) and averaged 1.7.

Several challenges were encountered while trialling the PAME assessment data in the PA indicator:

- To answer metric (a) of the PA indicator, the governance type of each PA was directly sought from CWS as answers from the PAME assessment did not align. It was also unclear whether PAs governed by two bodies with one primary body should be categorised as 'Shared Governance' or categorised according to the primary governor. The wording of, and answers to, PAME and the PA indicator metrics often differed, including in detail, and it was challenging at times to align. For example, the most appropriate PAME question that related to metric (e) on ecological monitoring did not include a 'Partial' option and therefore only 'Yes' and 'No' options were included in the scoring translation.
- For metric (f) there was no obvious PAME question that directly stated and answered whether a PA was or was not achieving its conservation objectives. Answers to a suitable PAME question were instead considered as proxies of this information. However, obtaining expert judgement may be a more suitable way to answer this metric.
- For metric (g), the indicator definitions for low, medium, and high confidence were very detailed and this level of information was absent from the PAME assessment answers. The PA indicator was only trialled on 1.6 % of Canada's PAs, most of which were governed by Government.

This case study has informed development of the PA indicator to improve its global applicability. Specific recommendations include adding 'N/A' categories to metrics (a) and (b) to account for any PAs that do not conform to the governance and PA types listed, as well as broadening and editing the definitions for low, medium and high confidence in metric (g) to better reflect the level of detail provided by existing PAME assessments. To ensure that the PA indicator metrics are interpreted and answered correctly, it is pertinent that the indicator guidelines are written as clearly as possible. This is to ensure that assessors fully understand the questions, in order to make appropriate judgements and select the most

suitable evidence. Further thoughts need to be explored in terms of using additional sources of information to fulfil the metric requirements, particularly in the absence of relevant PAME questions. Adding explanations for different outcomes of the PA indicator, would be useful to ensure the outcomes (i.e. indices of PA effectiveness) are easier to interpret. Addressing these points could help ensure that the global PA indicator is interpreted correctly, is non-biased, and is answered reliably so that it can be applied around the world.

4.3 Costa Rica

Costa Rica has over 160 PAs, 81.2 % of which are governed by a federal or national ministry or agency. Costa Rica's national environmental agency: Sistema Nacional de Áreas de Conservación (SINAC), part of the Ministry of Environment and Energy, oversees these PAs. To measure and monitor PA effectiveness, SINAC have conducted their own tailored Costa Rican Protected Area Management Effectiveness (CRPAME) assessment on an annual basis since 2016. The most recent CRPAME assessment was conducted on 73 PAs in 2020. These PAs were terrestrial and marine and did not include OECMs. The assessment consists of 19 separate non-weighted questions, grouped within three broad themes: "Social management", "Administrative management" and "Natural and cultural resources management", with answers ranging in score from one to four. To conduct the CRPAME assessments, full day workshops are held for each PA, utilising the knowledge of both site managers and all relevant stakeholders.

In order to trial the PA Management Effectiveness indicator (v4) and develop it further for global application, we invited SINAC to determine which of their CRPAME assessment question(s) and answers best conformed with each PA indicator metric. SINAC then trialled the PA indicator using the questions and scoring that they believed best aligned with the indicator, applying their 2020 PAME assessment data, as well as their expert knowledge on 73 additional PAs. JNCC then discussed and determined the suitability of the questions selected for alignment with the aims of the PA indicator.

Several challenges were encountered while trialling the CRPAME assessment data in the PA indicator. The main challenges came from the matching of the CRPAME assessment questions and associated scoring with the T3 PA indicator metrics. This resulted in many PAs appearing to perform extremely poorly in their PA effectiveness, which we do not believe accurately reflected Costa Rica's PAs. It is therefore likely that the information is not being captured accurately in the PA indicator. It was clear that further clarification is needed to ensure the metrics aims and supporting definitions for categories are clear to understand and suitably interpreted at Country level. Prior to SINAC trialling the indicator, SINAC asked for clarification on the definition of 'monitoring', indicating that there are different interpretations of this word. SINAC also requested guidance on how different levels of confidence were defined to fulfil metric (g). Although definitions were provided, these were likely too detailed for the level of evidence and information available to SINAC for each PA, and instead SINAC used (e) and (f) as proxies to complete this metric. Metric (f) on achieving conservation objectives was especially challenging to answer, as there were no suitable questions in the CRPAME assessment. Since SINAC used the overall CRPAME assessment scores to answer this metric, the outcome considered additional elements that the metric did not need to address (e.g. volunteer plans and presence of adequate IT systems).

Possible solutions to improving alignment of the CRPAME questions with the PA Indicator were discussed. When there were no suitable CRPAME questions equivalent to a particular PA indicator metrics, it is recommended that expert judgement or other available evidence is used to satisfy the metrics. JNCC perceived that the scoring rationale adopted by Costa Rica

for the translation of their data was too stringent to align with the PA metrics, which led to the indicator undermining the management effectiveness of their PAs. Further engagement with SINAC to address these actions followed by additional trialling of the PA indicator would be a particularly useful next step.

This case study has provided a good critical evaluation of the application of the PA indicator. In particular, it is evident that PAME assessments cannot always be used to for the PA indicator metrics, and therefore expert judgement may be required. The importance of acquiring expert judgement, where suitable PAME assessment questions are unavailable, should be made clear in the PA indicator guidance. This may pose a challenge to applicability of the PA indicator as acquiring expert judgement would be more time-consuming than using a PAME assessment question as a proxy. Clear communication, including comprehensible definitions and guidance, is essential so that the indicator metrics are understood, answered and scored correctly. This is particularly important as countries have different terminologies and ways of working.

5 Key Messages

The case studies used for trialling the global protected area management effectiveness Indicator have provided an excellent starting point identifying key considerations for the continued development of the indicator.

Both Canada and Costa Rica use PAME assessments across a proportion of their Protected Areas to measure management effectiveness. Canada's adapted METT-4 methodology has evolved to capture more of the ecological aspects. Costa Rica's PAME assessment remains management focused and does not report on the ecological aspects of the Protected Area beyond whether several ecologically focused management plans are in place (Costa Rica indicators R1 to R5). Although Costa Rica suggested appropriate indicator(s) to provide the data to answer the questions under our global indicator, as we began to define the definitions around these questions, the suggested Costa Rica indicator(s) data did not appear to capture the information we required for questions g and f. Having reviewed all indicators within the Costa Rica PAME assessments, it was felt that none of the indicators reflect the ecological objectives of the Protected Area and any progress towards these, as this was not the purpose of their PAME assessments.

Whilst PAME assessments are used globally to monitor the effective management of protected areas, these often do not include or do not focus on the ecological objectives of a PA. This has re-iterated the global need for this PA management effectiveness indicator, which is putting the focus on the achievement of conservation objectives.

The initial development and the trialling of the indicator has demonstrated the potential application of this indicator globally and as expected highlighted several key next steps to continue its development. The next steps are as follows:

1. *Trial the indicator using additional areas, PA types, OECMS and governance types*
While the indicator has been trialled using data from Canada, Costa Rica, Germany, Spain, Sweden and United Kingdom (the latter four countries in the context of OSPAR), trialling the indicator using data from other countries and including other governance types (e.g. shared governance) and PA types (e.g. OECMs) would be beneficial to inform further development of the indicator.
2. *Review and refine supporting definitions for the indicator to improve clarity*

With further iterations of the indicator a review and refining of the supporting definitions is required to ensure they are globally applicable to both PAs and OECMs and are clearly understandable.

3. *Explore using PAME data alongside additional sources to trial the indicator*
The initial trialling focussed on minimising effort for countries to complete this global indicator, by using existing PAME assessments. However, these case studies and initial trialling of the indicator has highlighted the need to explore the use of additional data sources.
4. *Review application of weightings during further testing*
Further consideration is needed to ensure the application of weightings by Governance type sufficiently reflects the nature of PA with particular efforts needed around OECMs and how shared and private governance fit within these weightings.

Our focus on requesting the case study countries to use existing reporting around PAs potentially complicated the countries efforts to answer those questions rather than simplified it. A redirection of focus to ensure countries understand what is being asked by each question, recognising that global terminology is going to differ, would allow each country to better decide whether currently reported indicators/questions (from one or several PAME assessments or other PA reporting) would answer the global indicator metrics or whether expert judgement would be more suitable.

6 References

CBD/COP. 2018. CBD/COP/DEC/14/8/2018: Decision adopted by the conference of the parties to the convention on biological diversity. Available from: <https://www.cbd.int/doc/decisions/cop-14/cop-14-dec-08-en.pdf> [Accessed 25 January 2022]

Ervin, J. 2003. Rapid assessment of protected area management effectiveness in four countries. *BioScience*, **53**, 833–841.

Hockings, M. and IUCN World Commission on Protected Areas, eds. 2006. Evaluating Effectiveness: A Framework for Assessing Management Effectiveness of Protected Areas. 2nd ed. *Best Practice Protected Area Guidelines Series, no. 14*. IUCN, Gland, Switzerland.

IUCN-WCPA Task Force on OECMs. 2019. Recognising and reporting other effective area-based conservation measures. IUCN, Gland, Switzerland.

IUCN. 2022. Protected Area Categories. Available from: <https://www.iucn.org/theme/protected-areas/about/protected-area-categories> [Accessed 25 January 2022]

Lacerda, L., Hockings, M., Ripley, S. & de Oliveira, L. R. N. 2007. Managing a protected area within its wider landscape: Tools for assessment and enhancement. *World Heritage Forests: Leveraging conservation at the landscape level*. World Heritage Centre, Paris.

OSPAR Commission. 2017. Guidelines for the Identification and Selection of Marine Protected Areas in the OSPAR Maritime Area. *OSPAR Agreement: 2003-17*.

SINAC. 2016. Herramienta para la Evaluación de la Efectividad de Manejo de las Áreas Silvestres Protegidas de Costa Rica. (2da ed.). San José, Costa Rica.

Stolton, S., Dudley, N. & Hockings, M. 2021. METT Handbook: A guide to using the Management Effectiveness Tracking Tool (METT). *Second edition guidance for using METT-4*. WWF, Gland, Switzerland

UNEP-WCMC. 2021a. Protected Area Profile for Canada from the World Database of Protected Areas, November 2021. Available from: www.protectedplanet.net. [Accessed 25 January 2022]

UNEP-WCMC. 2021b. Protected Area Profile for Costa Rica from the World Database of Protected Areas, November 2021. Available from: www.protectedplanet.net. [Accessed 25 January 2022]

7 Glossary

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| CBD | Convention on Biological Diversity (1992) – multilateral treaty with three main goals: the conservation of biological diversity; the sustainable use of its components; and the fair and equitable sharing of benefits arising from genetic resources |
| COP | Conference of the Parties – supreme decision-making body of an international convention |
| CRPAME assessment | Costa Rican Protected Area Management Effectiveness assessment – a method to assess the management effectiveness of PAs in Costa Rica, developed by SINAC |
| CWS | Canadian Wildlife Service – a branch of ECCC, Government of Canada |
| ECCC | Environment and Climate Change Canada – the department of the Government of Canada that is responsible for coordinating environmental policies and programs |
| ICG-MPA | Intersessional Correspondence Group on Marine Protected Areas – OSPAR working group that focuses on MPAs |
| IUCN | International Union for the Conservation of Nature – international organisation working in the field of nature conservation and sustainable use of natural resources |
| IUCN-WCPA framework | An overall assessment framework that provides a consistent approach to assessing PA management effectiveness |
| METT | The Management Effectiveness Tracking Tool – one of the most widely used PAME tools that incorporates the IUCN-WCPA framework, developed by the World Wildlife Fund Alliance and the World Bank and published in 2002 |
| MPA | Marine Protected Area |
| MBS | Migratory Bird Sanctuaries – sanctuaries established in Canada under the Migratory Birds Convention Act |

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| NWA | National Wildlife Area – wildlife areas established in Canada under the authority of the Canada Wildlife Act |
| OECM | Other Effective Conservation Measures – ‘Other effective area-based conservation measure’ means “a geographically defined area other than a Protected Area, which is governed and managed in ways that achieve positive and sustained long-term outcomes for the in situ conservation of biodiversity, ¹ with associated ecosystem functions and services and where applicable, cultural, spiritual, socio–economic, and other locally relevant values’ (CBD/COP 2018) |
| OSPAR | Oslo/Paris Convention for the Protection of the Marine Environment of the North-East Atlantic (1992) – convention guiding international cooperation for the protection of the marine environment of the North-East Atlantic |
| PA | Protected Area |
| PAME | Protected Area Management Effectiveness – ‘the assessment of how well an area is being managed – primarily the extent to which it is protecting values and achieving goals and objectives’ (Hockings et al. 2006) |
| RAPPAM | Rapid Assessment and Prioritization of Protected Area Management – a specific protected area assessment tool that is consistent with the WCPA framework, developed by the World Wildlife Fund between 1999 and 2002 |
| SINAC | Sistema Nacional de Áreas de Conservación – part of the Ministry of Environment and Energy of Costa Rica |
| UNEP-MCMC | United Nations Environment Programme World Conservation Monitoring Centre – a collaboration centre of UNEP |
| WCPA | World Commission on Protected Areas – a commission of the IUCN with protected area expertise |
| WDPA | World Database on Protected Areas – a comprehensive online global database on terrestrial and marine protected areas managed by UNEP-MCMC |