Achieving Fair and Effective Marine Protected and Conserved Areas in Belize Through the IUCN Green List Standard:

Report on the effectiveness of 14 marine protected areas in Belize, using the IUCN Green List Standard to benchmark current status and assess performance - Compiled Green List Self-Assessments with IUCN Review and Recommendations

JUNE 2024

International Union for Conservation of Nature

Ocean Country Partnership Programme C23-0604-1755

Table of Contents

Executive summary 10
1. Context 11
1.1 Marine Protected Areas in Belize 11
2. Methodology 11
2.1 Belize Marine Protected Areas and IUCN Green List 11
2.2 Green List self-assessment tool (IBEX) 11
2.3 How to use this report 14
2.4 The report methodology 15
3. Overall Recommendations 16
3.1 Overview table 16
3.1.1 Key insights from the IUCN Green List IBEX assessments 16
3.1.2 Overview of the IUCN Green List IBEX results 16
3.2 Comparative analysis by component 18
3.3 Interpretation 21
4. Individual reports of 14 MPAs 22
4.1 Bacalar Chico Marine Reserve 22
4.1.1 Key facts 22
4.1.2 Site Summary 22
4.1.3 Brief overview 23
4.1.4 Values 24
4.1.5 Summary of IUCN Green List self-assessment IBEX 25
4.1.6 Summary and recommendations 29
4.1.7 Key recommendations for the Green List process 30
4.1.8 Additional resources (links) 32
4.2 Hol Chan Marine Reserve 33
4.2.1 Key facts 33
4.2.2 Site Summary 33
4.2.3 Brief overview 34
4.2.4 Values 35
4.2.5 Summary of IUCN Green List self-assessment IBEX 36
4.2.6 Summary and recommendations 42
4.2.7 Key recommendations for the Green List process 43
4.2.8 Additional resources (links) 44
4.3 Blue Hole Natural Monument 45

4.3.1 Key facts 45
4.3.2 Site Summary 45
4.3.3 Brief overview 46
4.3.4 Values 47
4.3.5 Summary of IUCN Green List self-assessment IBEX 48
4.3.6 Summary and recommendations 53
4.3.7 Key recommendations for the Green List process 54
4.3.8 Additional resources (links) 55
4.4 Half Moon Caye Natural Monument 56
4.4.1 Key facts 56
4.4.2 Site Summary 56
4.4.3 Brief overview 57
4.4.4 Values 58
4.4.5 Summary of IUCN Green List self-assessment IBEX 59
4.4.6 Summary and recommendations 64
4.4.7 Key recommendations for the IUCN Green List process 65
4.4.8 Additional resources (links) 67
4.5 Glover's Reef Marine Reserve 68
4.5.1 Key facts 68
4.5.2 Site Summary 68
4.5.3 Brief overview 69
4.5.4 Values 70
4.5.5 Summary of IUCN Green List self-assessment IBEX 71
4.5.6 Summary and recommendations 76
4.5.7 Key recommendations for the IUCN Green List process 77
4.5.8 Additional resources (links) 78
4.6 Gladden Spit and Silk Cayes Marine Reserve 80
4.6.1 Key facts 80
4.6.2 Site Summary 80
4.6.3 Brief overview 80
4.6.4 Values 82
4.6.5 Summary of IUCN Green List self-assessment IBEX 83
4.6.6 Summary and recommendations 88
4.6.7 Key recommendations for the IUCN Green List process 89
4.6.8 Additional resources (links) 91
4.7 Sapodilla Cayes Marine Reserve 92

4.7.1 Key facts 92
4.7.2 Site Summary 92
4.7.3 Brief overview 93
4.7.4 Values 94
4.7.5 Summary of IUCN Green List self-assessment IBEX 96
4.7.6 Summary and recommendations 101
4.7.7 Key recommendations for the IUCN Green List process 102
4.7.8 Additional resources (links) 103
4.8 Port Honduras Marine Reserve 104
4.8.1 Key facts 104
4.8.2 Site Summary 104
4.8.3 Brief overview 105
4.8.4 Values 106
4.8.5 Summary of IUCN Green List self-assessment IBEX 108
4.8.6 Summary and recommendations 113
4.8.7 Key recommendations for the IUCN Green List process 114
4.8.8 Additional resources (links) 115
4.9 Laughing Bird Caye National Park 116
4.9.1 Key facts 116
4.9.2 Site Summary 116
4.9.3 Brief overview 117
4.9.4 Values 118
4.9.5 Summary of IUCN Green List self-assessment IBEX 120
4.9.6 Summary and recommendations 125
4.9.7 Key recommendations for the IUCN Green List process 126
4.9.8 Additional resources (links) 127
4.10 South Water Caye Marine Reserve 128
4.10.1 Key facts 128
4.10.2 Site Summary 128
4.10.3 Brief overview 129
4.10.4 Values 129
4.10.5 Summary of IUCN Green List self-assessment IBEX 131
4.10.6 Summary and recommendations 136
4.10.7 Key recommendations for the IUCN Green List process 137
4.10.8 Additional resources (links) 138
4.11 Swallow Caye Wildlife Sanctuary 139

4.11.1 Key facts 139
4.11.2 Site Summary 139
4.11.3 Brief overview 140
4.11.4 Values 141
4.11.5 Summary of IUCN Green List self-assessment IBEX 142
4.11.6 Summary and recommendations 147
4.11.7 Key recommendations for the IUCN Green List process 148
4.11.8 Additional resources (links) 149
4.12 Corozal Bay Wildlife Sanctuary 150
4.12.1 Key facts 150
4.12.2 Site Summary 150
4.12.3 Brief overview 151
4.12.4 Values 152
4.12.5 Summary of IUCN Green List self-assessment IBEX 153
4.12.6 Summary and recommendations 158
4.12.7 Key recommendations for the IUCN Green List process 159
4.12.8 Additional resources (links) 161
4.13 Caye Caulker Marine Reserve (CCMR) 162
4.13.1 Key facts 162
4.13.2 Site Summary 162
4.13.3 Brief overview 163
4.13.4 Values 164
4.13.5 Summary of IUCN Green List self-assessment IBEX 165
4.13.6 Summary and recommendations 170
4.13.7 Key recommendations for the IUCN Green List process 171
4.13.8 Additional resources (links) 172
4.14 Turneffe Atoll Marine Reserve 173
4.14.1 Key facts 173
4.14.2 Site Summary 173
4.14.3 Brief overview 174
4.14.4 Values 175
4.14.5 Summary of IUCN Green List self-assessment IBEX 176
4.14.6 Summary and recommendations 168
4.14.7 Key recommendations for the IUCN Green List process 169
4.14.8 Additional resources (links) 171
5. Conclusion 172

5.2 Key findings 172
5.3 Recommendations 172

List of Tables

Table 1. Illustration of values in the NECO table 14
Table 2. Overview of the IUCN Green List IBEX results 17
Table 3. Site description, Bacalar Chico Marine Reserve 22
Table 4 NECO, Bacalar Chico Marine Reserve 24
Table 5. Site description, Hol Chan Marine Reserve 33
Table 6. NECO, Hol Chan Marine Reserve 35
Table 7. Site description, Blue Hole Natural Monument 45
Table 8. NECO, Blue Hole Natural Monument 47
Table 9. Site description: Half Moon Caye Natural Monument 56
Table 10. NECO, Half Moon Caye Natural Monument 58
Table 11. Site description, Glover's Reef Marine Reserve 68
Table 12. NECO, Glover's Reef Marine Reserve 70
Table 13. Site description, Gladden Spit and Silk Cayes Marine Reserve 80
Table 14. NECO, Gladden Spit and Silk Cayes Marine Reserve 82
Table 15. Site description, Sapodilla Cayes Marine Reserve 92
Table 16. NECO, Sapodilla Cayes Marine Reserve 94
Table 17. Site description, Port Honduras Marine Reserve 104
Table 18. NECO, Port Honduras Marine Reserve 106
Table 19. Site description, Laughing Bird Caye National Park 116
Table 20. NECO, Laughing Bird Caye National Park 118
Table 21. Site description, South Water Caye Marine Reserve 128
Table 22. NECO, South Water Caye Marine Reserve 130
Table 23. Site description, Swallow Caye Wildlife Sanctuary 139
Table 24. NECO, Swallow Caye Wildlife Sanctuary 141
Table 25. Site description, Corozal Bay Wildlife Sanctuary 150
Table 26. NECO, Corozal Bay Wildlife Sanctuary 152
Table 27. Site description, Caye Caulker Marine Reserve (CCMR) 162
Table 28. NECO, Caye Caulker Marine Reserve (CCMR) 164
Table 29. Site description, Turneffe Atoll Marine Reserve 173
Table 30. NECO, Turneffe Atoll Marine Reserve 175

Table of Figures

Figure 1. Map of Distribution of Belize's Marine Protected Areas, grouped into three main complexes © IUCN 12
Figure 2. IUCN Green List 4 Components and 17 Criteria 12
Figure 3. Map, Bacalar Chico Marine Reserve 22
Figure 4. Map, Hol Chan Marine Reserve ©IUCN 33
Figure 5. Map, Blue Hole Natural Monument 45
Figure 6. Map, Half Moon Caye Natural Monument 56
Figure 7. Map, Glover's Reef Marine Reserve 68
Figure 8. Map, Gladden Spit and Silk Cayes Marine Reserve 80
Figure 9. Map, Sapodilla Cayes Marine Reserve 92
Figure 10. Map, Port Honduras Marine Reserve 104
Figure 11. Map, Laughing Bird Caye National Park 116
Figure 12. Map, South Water Caye Marine Reserve 128
Figure 13. Map, Swallow Caye Wildlife Sanctuary 139
Figure 14. Map, Corozal Bay Wildlife Sanctuary 150
Figure 15. Map, Caye Caulker Marine Reserve (CCMR) 162
Figure 16. Map, Turneffe Atoll Marine Reserve 173

This report submitted for the IUCN project number P04489 (JNCC C23-0604-1755) on 28 June 2024, was prepared by the IUCN Global Protected and Conserved Areas Programme, with input from IUCN Mexico, Central America and the Caribbean (ORMACC), on behalf of the UK Ocean Country Partnership Programme.

For further information, please contact:
International Union for Conservation of Nature
Siska Sihombing: Siska.SIHOMBING@iucn.org

This report should be cited as IUCN and OCPP (2024). Report on the effectiveness of 14 marine protected areas in Belize, using the IUCN Green List Standard to benchmark current status and assess performance.

Acknowledgments:
This report was principally authored by Siska Sihombing, with the IUCN Protected and Conserved Areas Programme, with oversight and review provided by James Hardcastle, Head of IUCN Global Protected and Conserved Areas, and Thierry Lefebvre, IUCN Green List Programme Manager. We are thankful to the broader IUCN team for their significant contributions to the report writing, including Carlos Enrique Godoy Liere, Angie Orejuela Yustes, Anita Tzec, Yves Olatoundji, Danielle Derrick, Marine Deguignet, Alexandru-Ioan Craciun, Cécile Fattebert, Swati Hingorani and Pietro Sandini.

The foundational data for this document were derived from self-assessments conducted by the respective Marine Protected Area (MPA) authorities and their co-managers, using the Green List self-assessment tool, IBEX. Additional information was sourced from the National Protected Areas - Management Effectiveness Evaluation (NPAs MEE 2023), the Management Plans of the referenced sites, and various other authoritative websites.
We extend our gratitude to all the partners and stakeholders involved in this evaluative process, whose ongoing commitment and insights are essential to the continuous improvement of protected and conserved areas' effectiveness worldwide.

Funding Acknowledgement:
This project was funded with UK International Development from the UK Government.

Ocean Country Partnership Programme:
The Ocean Country Partnership Programme (OCPP) is a UK Government-led programme delivered under the Blue Planet Fund in Overseas Development Assistance (ODA) eligible countries. Through this programme, Cefas, JNCC and MMO will provide technical assistance to support countries to tackle marine pollution, support sustainable seafood practices and establish designated, well-managed and enforced MPAs.

Executive summary

This report is designed to help Belize's Marine Protected Areas (MPA) authorities recognize successes to date and prioritize areas for improvement to help achieve overall effectiveness and align with international standards and best practice.

The report details the effectiveness of selected MPAs in Belize based on the site management's self-assessment exercise using the IUCN Green List Standard self-assessment tool (IBEX). This tool allows for the benchmarking of status and performance, building from existing information, data, and knowledge.

The results from IUCN are very positive, showing a general trend of moderate- to sound-overall effectiveness, but with some variation among individual MPAs. The effectiveness ranking shows that all sites are at least 'partially' effective, with several MPAs 'near' alignment with the full range of criteria of the IUCN Green List Standard. When self-assessment scores are calibrated, they range from 44% to 77% for fourteen (14) MPAs, indicating some unique disparities that can be resolved through targeted management interventions to enhance overall performance across these MPAs.

Effectiveness is measured by matching performance against the criteria and indicators of the four components of the IUCN Green List Standard: Good Governance, Sound Design and Planning, Effective Management, and Successful Conservation Outcomes.

The report emphasises some of the ongoing challenges in MPA management in Belize but also highlights the opportunities for improvement and should be a cause for optimism. It highlights the opportunity for continuous evaluation and adaptive management strategies to address these challenges and achieve long-term conservation outcomes.

The methodology employed for this assessment uses the IUCN Green List Criteria and Indicators, oriented through workshops and training on the Green List self-assessment tool (IBEX). This approach not only assesses current performance but also aims to align Belize's MPAs with the IUCN Green List verification programme so that by 2027, within the framework of the Belize Blue Bond "Conservation Commitment", contributing to the Global Biodiversity Framework's Target 3 or "30x30" goal, several sites could feasibly be certified by IUCN as achieving and maintaining the global Green List Standard for effective MPAs.

The report concludes with recommendations for future actions based on the review's findings. These include enhancing stakeholder engagement, refining adaptive management practices, and leveraging the continuous improvement framework provided by the IUCN Green List Standard to ensure that Belize's MPAs meet global best practices for effective area-based conservation.

This report serves as an essential tool for site management, national authorities, policymakers, conservationists, stakeholders and rightsholders, providing them with a clear and concise overview of the achievements and areas for improvement in the management of

Belize's MPAs. It sets a framework for strategic planning and targeted interventions that will enhance the effectiveness and sustainability of marine conservation efforts in Belize.

1. Context

1.1 Marine Protected Areas in Belize

Belize's Marine Protected Areas (MPAs) are crucial to the country's efforts to conserve its rich marine biodiversity, which includes the Mesoamerican barrier reef, the largest barrier reef in the Northern Hemisphere. The data from the Belize Fisheries Department[1] provides a comprehensive analysis of the current state, management, and effectiveness of these MPAs, emphasising both achievements and ongoing challenges.

The marine reserves in Belize span an impressive 442,667 hectares, while the total area of MPAs amounts to 539,487 hectares, covering 28% of Belize's territorial seas. The Cabinet endorsed these areas in April 2019 and officially declared them in 2022. Notably, Belize aims to designate 30% of its oceans as high and medium biodiversity areas, demonstrating a strong commitment to marine conservation.

Belize's MPAs operate under a legal framework that includes the Fisheries Resources Act, which mandates sustainable fisheries management and biodiversity conservation. The primary governing body is the Belize Fisheries Department, supported by co-management agreements with non-governmental organisations (NGOs).

Belize has committed to an innovative financial instrument, the Belize Blue Bond, issued by The Nature Conservancy, to promote sustainable marine conservation and climate resilience. As part of this commitment, the country has pledged to ensure that three Marine Protected Areas (MPAs) apply for Green List status. This initiative aligns with Belize's "30x30" goal.

Part of the overall effectiveness of MPA sites and networks is their management performance, or 'Management Effectiveness'. This is one of the key components of the IUCN Green List and is a critical measure of how well these MPAs are achieving their conservation goals. This is evaluated through various metrics, with management plans, stakeholder participation, and advisory committees playing important roles.

An analysis of management effectiveness in Belize's MPAs in 2019[2], using a consistent national methodology in line with IUCN best practice, reveals a moderate level of effectiveness, with an average score of 59.4%. This score, however, varied widely among individual protected areas, ranging from 29.5% to 83.5%. Such variability underscores the need for ongoing improvements and targeted interventions in certain areas to enhance overall management effectiveness. To enhance effective management across all MPAs,

[1] Eck-Nunez, A. (2023). Marine Protected Areas in Belize. Belize Fisheries Department

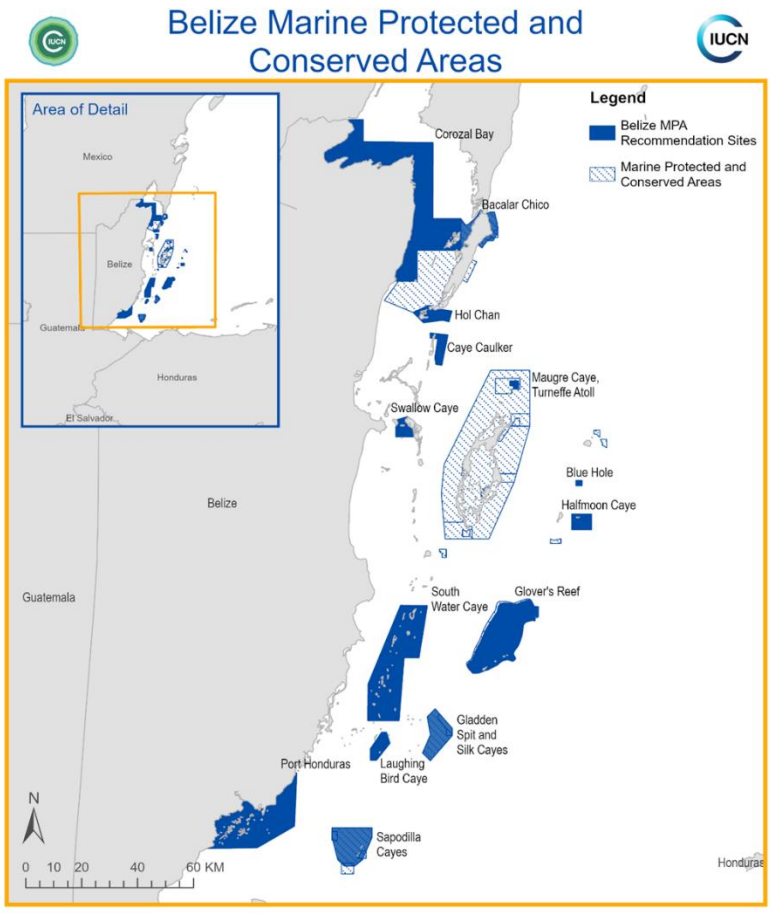
[2] Walker, Z. (2020). Belize National Protected Areas System – Management Effectiveness Evaluation Tool. Belize Forest Department

continuous evaluation and adaptive management strategies are essential to address these challenges and achieve long-term conservation outcomes.

This review will work in conjunction with the site-level and national NPAS-MEE assessments, each offering insights and benefits. The Green List assessment provides an international benchmark for protected area management effectiveness, ensuring global standards are met. Meanwhile, the NPAS-MEE assessments focus on national and site-specific priorities, enabling tailored strategies for local contexts. Together, these assessments complement each other by integrating global best practices with site-level management needs, thereby enhancing overall conservation outcomes and achieving the overarching goals for Belize.

The IUCN review, benchmarking available information, data, management effectiveness scores and more recent self-assessment inputs, updates the available information and sets a measurable and comparable baseline for each MPA, allowing for targeted improvements and investments over the coming years, and putting Belize on a clear pathway to report both coverage and effectiveness elements of the Global Biodiversity Framework's Target 3 and 30x30 ambitions.

Figure 1. Map of Distribution of Belize's Marine Protected Areas, grouped into three main complexes © IUCN



Northern Belize Coastal Complex
Bacalar Chico Marine Reserve
Caye Caulker Marine Reserve
Hol Chan Marine Reserve

Central Coast and Atoll Complex
Turneffe Atoll Marine Reserve
Blue Hole Natural Monument
Half Moon Caye Natural Monument
Swallow Caye Marine Reserve

Southern Belize Reef Complex
South Water Caye Marine Reserve
Gladden Spit and Silk Cayes Marine Reserve
Port Honduras Marine Reserve
Sapodilla Cayes Marine Reserve
Glover's Reef Marine Reserve
Laughing Bird Caye National Park

2. Methodology

2.1 Belize Marine Protected Areas and IUCN Green List

In Belize, the initiative to align MPAs with the IUCN Green List Standard represents a significant commitment to enhancing marine conservation through internationally recognised best practices. The project, "**Achieving Fair and Effective Marine Protected and Conserved Areas in Belize through the IUCN Green List Standard**," conducted in collaboration with various stakeholders, including the Ministry of Blue Economy and Disaster Risk Management (previously Ministry of Blue Economy and Civil Aviation) and Belize Fisheries Department, emphasises the strategic incorporation of Belize's MPAs into the Green List pathway by 2027. This move aligns with Belize's Blue Bond commitments, fostering a foundational framework for environmental governance that balances ecological needs with socio-economic benefits.

The methodology underpinning this initiative is detailed and structured, focusing on the rigorous application of the Green List Standard's criteria and indicators. A series of comprehensive workshops held in Belize City from August 31 to September 7 2023, served as a platform for knowledge exchange among MPA managers and stakeholders. These workshops were instrumental in providing participants with a deep understanding of the Green List Standard, emphasising its practical application through IBEX.

2.2 Green List self-assessment tool (IBEX)

The IUCN Green List for Protected and Conserved Areas is a global standard for protected and conserved areas that are effectively managed and fairly governed. It recognizes and promotes success in achieving long-term conservation outcomes through rigorous standards and evaluation processes. There are 17 criteria distributed across the four components, and these criteria are assessed using a total of 50 indicators. Each indicator provides measurable data or evidence that helps evaluate whether the criteria are met.

Figure 2. IUCN Green List 4 Components and 17 Criteria

The Green List self-assessment tool (or IBEX – Improvement Benchmarking and Evaluation Index)) is designed to evaluate the effectiveness of protected and conserved areas (PCA) performance against the IUCN Green List Standard. The IBEX tool facilitates a rapid self-assessment of PCA performance, enabling site managers to identify immediate areas for improvement and investment, thus enhancing the effectiveness of conservation efforts.

The IBEX methodology revolves around a systematic evaluation framework structured into several components, each corresponding to key aspects of the PCA governance and management.

Assessment framework
The assessment is segmented into various components, each representing a core area of site management: good governance, design and planning, effective management and conservation outcomes.

Ranking system
Each IUCN Green List Standard criterion is assessed using a performance scale ranging from "Very Limited" to "Fully" effective. These levels are defined as:

- **Very Limited**: No discernible arrangements or efforts aligning with the criterion.
- **Limited**: Minimal efforts that do not significantly align with the criterion.
- **Partial**: Moderate alignment with the criterion, noticeable efforts and some effective outcomes.
- **Near**: High level of alignment with the criterion; only minor issues present.

- **Fully**: Complete and exemplary alignment with the criterion, with effective and sustainable outcomes.

Scoring calculation
Ranking is also assigned a score derived from inputs and weighting across criteria and their underlying indicators. Scores for each criterion are aggregated to derive a total score for each component (namely, good governance, design and planning, effective management and conservation outcomes). These scores are then normalised against the maximum possible for each component to provide a percentage score reflecting the extent to which the criteria within each component are met.

Data collection and evidence
Even though this is a self-assessment exercise, the report writing requires collecting evidence and some means of verification to support each score given. This might include management plans, documentation, surveys, publications, or compliance reports, ensuring and strengthening that verifiable data back each score. Based on this desktop analysis and the accompanying documentation, recommendations are formulated.

Evaluation process
The assessment process involves a review of the collected evidence against the predefined criteria of the IUCN Green List Standard. This is typically done through a combination of self-assessment by site managers and verification by external parties, when necessary, to ensure impartiality and accuracy.

Summary and reporting
The final stage of the methodology involves compiling the scores from each component into an overall performance dashboard, which highlights areas of strength and needs for improvement. This comprehensive view supports strategic decision-making and helps guide future management actions.

Continuous improvement
The tool is designed not only as a means of assessment but also as a framework for continuous improvement. By identifying gaps in management effectiveness, the tool helps site managers focus on areas that require enhancement, fostering a cycle of ongoing development and better conservation outcomes.

Understanding values and setting thresholds for success – NECO table
One aspect of the IBEX self-assessment is a simple table that highlights the trends and status of important conservation values. The table, known as the ‘Natural, Ecosystem, Cultural Outcomes’ NECO table, allows visual tracking of the progress and status of conservation efforts for all major site values in each MPA. An example value (coral reef habitat) in the NECO table is illustrated here:

Table 1. Illustration of values in the NECO table

Conservation Value	Metric	Threats	Conservation efforts	Desired threshold (date)	Current trend and status
Coral Reef habitat	Extent of live coral cover	Bleaching, run-off, damage, over-fishing, phase shifts	Strict protection zones; reef check monitoring at strategic 16 transects	All transects show stable or increased live coral cover by 2027. Major bleaching events are detected early.	Live coral cover is stable. No recent extended bleaching events. Prior bleach damage recovery.

The NECO table helps represent the focus of the IUCN Green List Standard – ensuring that a) the major site values are identified and understood, b) the design and planning support their conservation, c) that management is effective in addressing threats and needs, and d) that the MPA can set reasonable success thresholds and monitor and determine successful outcomes to date.

2.3 How to use this report

This report provides a comprehensive analysis of the current status and performance of MPAs in Belize using the IUCN Green List self-assessment results. The document is intended as a resource for stakeholders involved in the relevant MPAs, including government agencies, site managers and staff, and the stakeholders and rightsholders who are involved and rely on these areas.

Here is how to use the findings and recommendations presented in the report:

- **Strategic planning and management**
  The individual and summarised IBEX rankings and scores for each MPA, detailed in the report, serve as a baseline for understanding current management effectiveness. Management teams at each MPA can use these insights to validate ongoing conservation strategies and adapt or introduce new ones where necessary.

- **Tracking and reporting progress**
  The report offers a framework for continuous improvement by outlining specific recommendations for each MPA based on their current performance scores. It is essential for practitioners to track the implementation of these recommendations through subsequent assessments, which can be facilitated by the IUCN Green List self-assessment tool. This iterative process not only measures progress but also helps in reporting to international entities, donors, and the national authorities, demonstrating accountability and the impact of investments in area-based

conservation. The ongoing NPAS-MEE assessments will complement the IUCN Green List assessment process to regularly measure the site performance.

- **Improvement of the law and policy and stakeholder engagement**
  The findings from this report highlight areas where policy intervention is needed and where stakeholder engagement can be enhanced. Policymakers can use the detailed governance, planning, and management analysis across Belize's MPAs to improve the relevant policies. Additionally, the report can help guide discussions with local communities, stakeholders, and partners to foster collaborative governance and integrated management approaches.

- **Capacity building and resource allocation**
  As revealed by the report, the variability in IBEX and NPAS-MEE scores among the MPAs indicates the need for targeted capacity building and resource allocation. Decision-makers should use this data to direct resources and training to MPAs that require the most improvement, ensuring that investments are made strategically to address specific management and conservation practice gaps.

The report provides a clear picture of where the relevant MPAs in Belize offer a roadmap for achieving sustainable conservation outcomes which is helpful for all stakeholders involved in the management of Belize's MPAs.

2.4 The report methodology

The methodology outlined in this report integrates a comprehensive approach to self-evaluating the effectiveness of marine protected areas (MPAs) in Belize. This process has been carefully designed to ensure an effective assessment that aligns with international conservation practices for protected and conserved areas.

The process began with training sessions for co-site managers on how to use the Green List self-assessment tool, IBEX. This initial phase was crucial as it equipped the managers with the necessary skills to self-assess their respective MPAs accurately. Following the in-person training in September 2023 in Belize, co-site managers conducted a preliminary self-assessment of their MPAs. The preliminary assessment was then collectively reviewed and revised in collaboration with other MPA staff. This collaborative approach ensured that the assessments were comprehensive and incorporated diverse perspectives, enhancing the accuracy and reliability of the data and was important to ensure that all relevant stakeholders had input into the evaluation process, reflecting a shared understanding of the status and needs of each MPA.

Between November 2023 and May 2024, the finalised IBEX assessment records and associated 'outcome' NECO tables were shared with the IUCN team. The IUCN team then compiled these assessments to create a unified dataset that reflected the current status and effectiveness of Belize's MPAs.

The current recommendations report was then prepared based on the comprehensive IBEX self-assessment results provided by the co-site managers. To ensure a thorough analysis,

these results were supplemented with additional documentation such as management plans, the National Protected Areas - Management Effectiveness Evaluation (NPAs MEE 2023), relevant legal and policy documents, and other useful websites where relevant.

3. Overall Recommendations

3.1 Overview table

3.1.1 Key insights from the IUCN Green List IBEX assessments

The results presented are primarily based on the IUCN Green List self-assessments conducted by the selected 14 MPA sites between September 2023 and April 2024, the findings of which are detailed in this report.

It should be noted that IUCN Green List self-assessment, or “IBEX”, methodology has been implemented at an initial stage, focusing primarily on baseline data collection to gather detailed information on biodiversity, ecosystem services, and socio-economic factors. The data provided by site managers has not undergone a deeper verification by a third party or through more inclusive stakeholder engagement, which would normally include evaluations from external auditors (formally called ‘Expert Assessment Group – Green List EAGL’ experts in the IUCN Green List programme) and consultations in site management and governance.

3.1.2 Overview of the IUCN Green List IBEX results

While MPA sites generally perform well in governance and planning components, variability is observed in effective management. Several sites cannot adequately demonstrate successful conservation results as they have not set objectively measurable targets for their key values. In other words, what does success look like for the MPA? Has a clear target been set for conservation management? If so, has that target or threshold been met? What evidence can support such achievements? Many of the MPAs cannot judge whether they achieve thresholds due to the absence of a system to measure success and data to determine outcomes, particularly for natural values, despite high self-evaluation scores in other components. This discrepancy highlights potential biases in results across sites, influenced by varying interpretations of the self-assessment and requests for information. Consequently, caution is warranted in interpreting Green List Standard achievements across sites rather than using these as a basis for further elaboration with each site management team, as differences may arise compared to other evaluations.

Table 2. Overview of the IUCN Green List IBEX results

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Bacalar Chico Marine Reserve	Hol Chan Marine Reserve	Blue Hole Natural Monument	Half Moon Caye Natural Monument	Glover's Reef Marine Reserve	Gladden Spit and Silk Cayes Marine Reserve	Sapodilla Cayes Marine Reserve	Port Honduras Marine Reserve	Laughing Bird Caye National Park	South Water Caye Marine Reserve	Swallow Caye Marine Reserve	Corozal Bay Wildlife Sanctuary	Caye Caulker Marine Reserve	Turneffe Atoll Marine Reserve
IBEX 2024 overall score	**66%**	**62%**	**72%**	**68%**	**44%**	**72%**	**69%**	**57%**	**63%**	**60%**	**72%**	**62%**	**77%**	**71%**
IBEX 2024 ranking	**6**	**8**	**2**	**5**	**10**	**2**	**4**	**11**	**7**	**9**	**2**	**8**	**1**	**3**
Good Governance	**69%**	**75%**	**106%**	**97%**	**54%**	**82%**	**69%**	**98%**	**76%**	**88%**	**90%**	**91%**	**91%**	**93%**
1.1 Guarantee legitimacy and voice	64%	84%	100%	91%	50%	90%	66%	100%	67%	84%	93%	97%	88%	100%
1.2 Achieve transparency and accountability	50%	40%	120%	100%	40%	60%	70%	90%	70%	90%	80%	100%	90%	80%
1.3 Enable governance vitality and capacity to respond adaptatively	98%	100%	94%	100%	70%	100%	73%	100%	94%	94%	100%	77%	100%	98%
Design and Planning	**85%**	**89%**	**93%**	**89%**	**63%**	**98%**	**75%**	**72%**	**74%**	**87%**	**48%**	**86%**	**96%**	**99%**
2.1 Identify and understand major site values	90%	100%	100%	100%	80%	100%	100%	80%	100%	100%	90%	100%	100%	100%
2.2 Design for long-term conservation of major site values	100%	100%	80%	80%	70%	100%	100%	80%	100%	100%	100%	80%	80%	100%
2.3. Understand threats and challenges to major site values	61%	85%	100%	81%	49%	93%	50%	100%	30%	61%	0%	69%	100%	100%
2.4 Understand social and economic context	90%	72%	90%	90%	60%	100%	50%	21%	65%	86%	0%	90%	100%	96%
Effective Management	**61%**	**73%**	**80%**	**78%**	**53%**	**76%**	**68%**	**52%**	**64%**	**57%**	**74%**	**73%**	**68%**	**69%**
3.1 Develop and implement a long-term management strategy	50%	73%	77%	75%	31%	66%	57%	27%	61%	55%	56%	69%	50%	55%
3.2 Manage ecological condition	58%	67%	100%	100%	33%	75%	67%	28%	100%	67%	67%	79%	50%	67%
3.3 Manage within social and economic context of the area	67%	100%	100%	100%	50%	100%	100%	75%	83%	50%	100%	100%	75%	75%
3.4 Manage threats	33%	67%	50%	50%	33%	100%	33%	33%	33%	33%	33%	50%	50%	33%
3.5 Effectively and fairly enforce laws and regulations	83%	79%	94%	90%	54%	52%	77%	94%	30%	73%	75%	88%	76%	85%
3.6 Manage access, resources use and visitation	83%	95%	97%	92%	68%	88%	89%	83%	97%	82%	86%	81%	79%	81%
3.7 Measure success	50%	30%	40%	40%	100%	50%	50%	25%	40%	40%	100%	40%	100%	90%
Successful Conservation Outcomes	**50%**	**8%**	**8%**	**8%**	**8%**	**33%**	**67%**	**8%**	**38%**	**8%**	**75%**	**0%**	**54%**	**21%**
4.1 Demonstrate conservation of major natural values	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	50%	50%
4.2 Demonstrate conservation of major associated ecosystem services	100%	25%	25%	25%	25%	50%	100%	25%	63%	25%	25%	0%	62%	13%
4.3 Demonstrate conservation of cultural values	100%	0%	0%	0%	0%	100%	100%	0%	100%	0%	100%	0%	100%	0%

3.2 Comparative analysis by component

3.2.1 Good governance

Good governance stands out as the most successfully met component according to the self-evaluations of Belize's MPAs, with 50% of the sites meeting or exceeding the 80% threshold for all criteria in this component. Most MPAs exhibit high scores in enabling governance vitality and capacity to respond adaptively, with scores around or above 90%. Governance structures are generally well-defined, with several MPAs achieving high scores in guaranteeing legitimacy and stakeholder voice. However, transparency and accountability vary significantly, with Blue Hole Natural Monument scoring the highest (100%, after calibration) while others, like Hol Chan Marine Reserve score as low as 40%. Scores for achieving transparency and accountability are inconsistent across MPAs, highlighting the need for improvement in some areas.

Key IUCN recommendations across the 14 MPA sites
To ensure sustainable practices and effective governance in Belize's Marine Protected Areas, it is essential to conduct governance assessments and develop annual work plans incorporating continuous monitoring and adaptive management, thereby institutionalising monitoring and evaluation. Assessing governance can lead to better compliance with regulations by identifying gaps in enforcement and suggesting ways to strengthen them. Enhancing stakeholder engagement is vital, with specific efforts to increase community participation and include marginalised groups such as women and Indigenous Peoples in decision-making processes. Improving transparency by making governance documents accessible and establishing clear grievance mechanisms to address stakeholder concerns is equally important. Strengthening communication channels between management and stakeholders will facilitate better information exchange and collaborative decision-making. It is also recommended that rightsholders of the relevant MPAs be engaged to ensure their perspectives and rights are integral to the management process. A "rightsholder" refers to individuals or groups with legal, customary, or usage rights to the resources within those areas. Engaging rightsholders is critical because they are directly affected by the regulations and management strategies implemented in MPAs. Their involvement ensures that MPA management practices are equitable and consider the needs and rights of those who depend on these resources for their livelihoods and cultural practices.

3.2.2 Design and Planning

The design and planning of Belize's MPAs effectively utilise zoning systems to balance conservation efforts with sustainable use and equitable access to marine and coastal resources. These zones typically include no-take areas, general-use areas, and specific zones dedicated to research and tourism, ensuring that various conservation and utilisation needs are met. The primary conservation goals across the MPAs are consistent and focus on protecting critical habitats, supporting biodiversity, and enhancing ecosystem resilience to climate change. Specific targets often emphasise key species such as coral reef ecosystems and diversity, marine turtles, sharks and rays, and commercially valuable fish species.

High scores in identifying and understanding major site values are consistent across most MPAs, indicating thorough initial assessments. Many MPAs have well-aligned designations and scales for long-term conservation, with ranking frequently achieving full alignment with the relevant IUCN Green List Standard criteria. The ecological emphasis, however, varies significantly among the different MPAs. For instance, the Blue Hole Natural Monument prioritises the preservation of its unique underwater cave systems and associated biodiversity, whereas the Gladden Spit and Silk Cayes Marine Reserve focuses on protecting the spawning aggregations of fish species that are important for both local

fisheries and broader marine biodiversity. Furthermore, the IBEX scores reflect this variability in focus and effectiveness. For example, Blue Hole Natural Monument achieved a high score of 93% in design and planning, highlighting its comprehensive approach to preserving unique geological features and ecological habitats. In contrast, Glover's Reef Marine Reserve, with a score of 63%, indicates areas needing improvement, particularly in understanding and addressing threats to major site values.

Understanding threats and challenges presents indeed more variability, with scores ranging from 0% (Swallow Caye Marine Reserve) to 100% (several MPAs). Understanding the social and economic context also varies widely, with some MPAs like Swallow Caye Marine Reserve scoring 0% while others like Turneffe Atoll Marine Reserve scoring 96%. The low results for Swallow Caye Marine Reserve are assumed due mainly to a lack of detailed attention to these elements and limited justification, data and reports provided on threats and external context.

Key IUCN recommendations across the 14 MPA sites
Several potential strategies could help enhance the effectiveness of management in protected areas. Firstly, conducting systematic threat assessments will better identify risks to natural values, ecosystem services, and cultural values. These assessments should serve as a foundation for regularly updating and informing management plans. Developing and implementing detailed annual operational plans aligned with management strategies and conservation objectives is also essential. This approach ensures efficient and targeted efforts and measurable progress towards conservation goals.

Moreover, increasing the number of well-equipped and trained staff, particularly rangers, is vital for effective surveillance and enforcement activities. Lastly, conducting community impact analyses is necessary to evaluate the social and economic effects of protected areas on local communities, aiming to strike a balance between conservation efforts and community needs and benefits, ideally through an inclusive and rights-based approach to ensure full alignment with IUCN and global norms on equity in protected and conserved areas. These integrated approaches are key to sustaining biodiversity and enhancing the resilience of protected areas in the long term.

3.2.3 Effective Management

Most of the selected MPAs show moderate to high rankings in managing ecological conditions and enforcing laws and regulations. Engaging within the social and economic context is highly consistent and aligned across many MPAs, indicating strong community involvement. Conversely, there are significant disparities in the development and implementation of long-term management strategies, with some MPAs, like Glover’s Reef Marine Reserve, scoring as low as 31% with ‘limited’ alignment to relevant IUCN Green List criteria. Once threats are identified, there is a general and network-wide challenge in managing these threats for many MPAs, with consistently low scores of around 33%.

Specific threats and management challenges differ among the MPAs. Coastal development pressures are more significant in areas like the Hol Chan Marine Reserve. In contrast, climate change and coral bleaching are more prominent concerns for the Southern Belize Reef Complex MPAs. The extent and type of resources available for management activities vary. Some MPAs, such as Glover's Reef Marine Reserve, have well-established research facilities and greater funding, while others like the Sapodilla Cayes Marine Reserve, face more constraints and rely heavily on co-management with local NGOs.

Key recommendations across the 14 sites
Management plans should clearly articulate goals for conserving natural values and achieving social and economic objectives, including specific strategies to address threats

such as illegal fishing, pollution, and climate change impacts. To implement these plans effectively, increase the number of well-trained staff, ensure gender equity, and equip staff with the necessary skills. Acquire and maintain essential equipment and infrastructure, such as patrol boats and monitoring devices, and develop financial sustainability plans to secure long-term funding through diversified income sources like eco-tourism and grants. Strengthen patrol and surveillance teams with adequate resources for efficient operations. Clearly describe permitted activities in management plans, accommodating local users' needs without compromising conservation goals. Assess and mitigate the environmental impacts of visitation and infrastructure to ensure sustainable tourism practices. Establish integrated monitoring systems for key site values, set thresholds and performance measures, and ensure regular documentation and public reporting to maintain transparency and inform stakeholders of progress.

3.2.4 Successful Conservation Outcomes

Demonstrating conservation of major natural values is the key element and principle focus of the IUCN Green List Standard. At this early stage in alignment, there are universally low rankings across all MPAs, with most unable to quantifiably demonstrate results for their conservation efforts. This does not mean that results are not inherent, or intrinsically understood by MPA managers and stakeholders, rather that management is not clearly focused on demonstrating outcomes and directly responding to status and trends in their key conservation values. That said, the conservation of cultural values shows some more positive variability, but many MPAs still lack clear documentation and demonstration of these outcomes. Scores for conservation of associated ecosystem services vary significantly, with some MPAs like Bacalar Chico Marine Reserve scoring 100%, while others like Swallow Caye Marine Reserve unable yet to demonstrate results.

Conservation outcomes represent the least achieved component among Belize's MPAs, with no site meeting all three criteria. Only Caye Caulker Marine Reserve fully meets the criterion for natural values, and two other sites, Turneffe Atoll Marine Reserve and Swallow Caye Marine Reserve, are partially aligned with the IUCN Green List requirements, while the remaining MPAs lack any alignment to date. This disparity highlights significant gaps in the ability to demonstrate conservation effectiveness and the challenges in measuring progress and adaptively responding to persistent or emerging threats.

Several factors contribute to these low scores. The primary issue is the absence of comprehensive data due to gaps in monitoring systems. There is a clear correlation between the lack of robust monitoring (criterion 3.7) and the inability to demonstrate successful conservation outcomes. Interestingly, even MPAs with established monitoring systems sometimes fail to report successful conservation outcomes for their key values, suggesting possible issues with data interpretation, monitoring focus, or reporting standards. For example, despite having monitoring systems in place, South Water Caye Marine Reserve cannot satisfactorily demonstrate conservation for its major natural values.

Key recommendations across the 14 sites
Establishing clear, measurable conservation targets for key natural values and ecosystem services is essential based on scientific research integrated with local and traditional knowledge, with such baseline data supporting effective monitoring. Strengthening monitoring programs to include comprehensive assessments of biodiversity health and cultural heritage preservation allows for adaptive management strategies and demonstrates conservation success. Additionally, developing and implementing climate adaptation plans will help anticipate and respond to environmental changes, ensuring the long-term resilience of the protected areas.

3.3 Interpretation

The Belize NPAS-MEE 2023 and IBEX 2024 scores may differ, even though the methodologies are largely aligned in coverage and complementarity. These discrepancies suggest that while NPAS-MEE focuses on certain effectiveness metrics, the IUCN Green List Standard and IBEX offer a more holistic and stringent evaluation framework, emphasising areas like governance vitality and adaptive management and firmly on the ability to show conservation results for major values. IBEX also places a strong emphasis on stakeholder engagement and transparency, where some MPAs may have scored lower despite high operational effectiveness. Several possible causes from the perspective of IUCN: biases in interpreting the IUCN Green List standard, over or under-evaluation by the managers themselves (a usual trait in self-assessment exercises), lack of internal consultation to validate certain responses, the IBEX tool itself due to the indicator weighting system, and the interdependence of some criteria where if one criterion is not met, it affects others (cascade effect, especially the absence of monitoring, which can limit the ability to meet component 4).

A more detailed quality check and stakeholder consultation will help complete and harmonise the data. It is also noted that few justifications were provided to facilitate the analysis of results and understand the requirements to meet the Green List Standard. However, it is worth noting that all MPAs made a commendable effort to provide information for their self-assessment, particularly the framing of their values and outcomes in the IUCN ‘NECO table’.

4. Individual reports of 14 MPAs

4.1 Bacalar Chico Marine Reserve

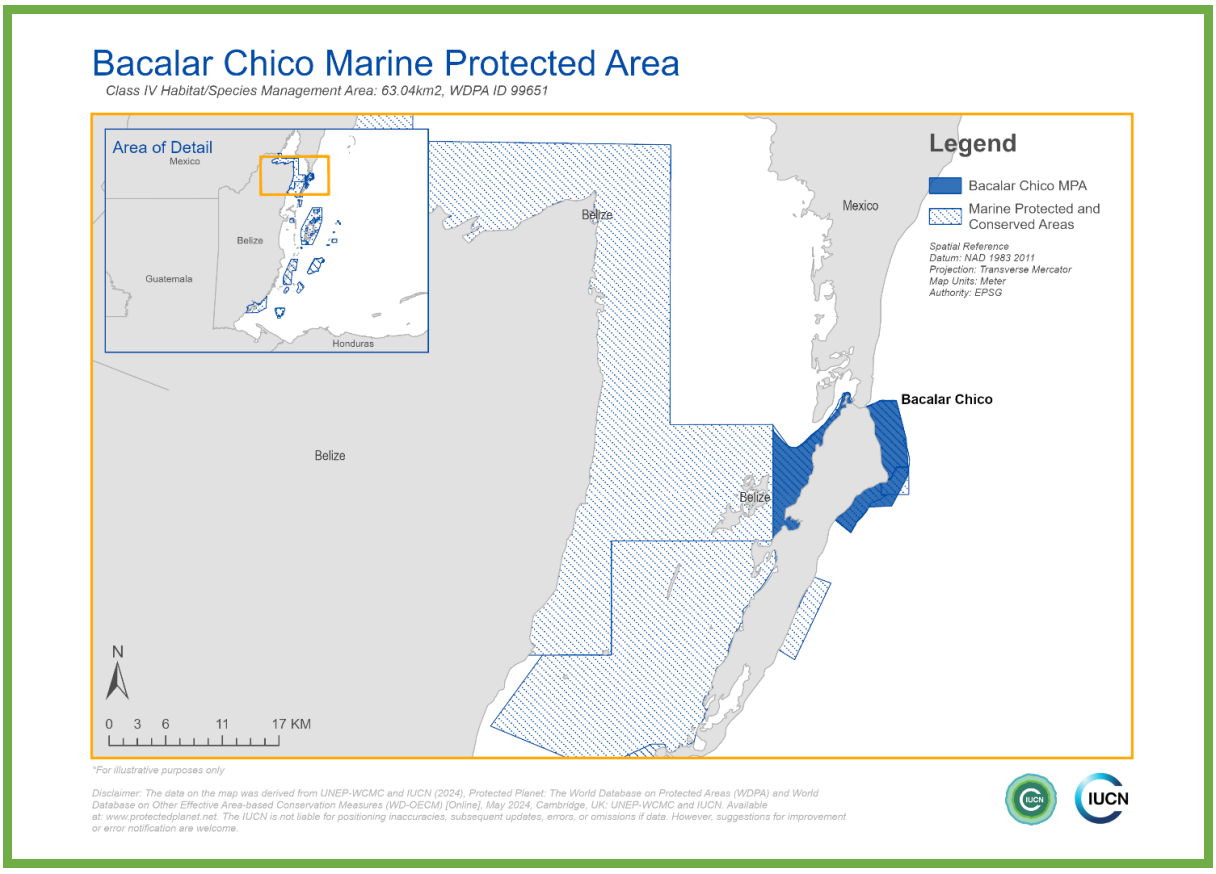
4.1.1 Key facts

Table 3. Site description, Bacalar Chico Marine Reserve

WDPA ID	**99651**
Reported area (km^2)	**63.04**
IUCN management category	**IV Habitat/Species Management Area**
Status	**Designated**
Type of designation	**National**
Status year	**1996**
Governance type	**Governance by government**
Management authority	**Fisheries Department**
Co-Management	**N/A**
Management plan	**2023 - 2027**
Management Effectiveness Evaluations	**Belize MEE (2023), METT (2013)**

4.1.2 Site Summary

Figure 3. Map, Bacalar Chico Marine Reserve



4.1.3 Brief overview

Description of the key ecosystems and species that the area aims to protect. Any cultural, historical, or indigenous values associated with the area

The Bacalar Chico Marine Reserve (or BCMR) is a MPA and UNESCO World Heritage site. Established in 1996, BCMR is the only point along the Mesoamerican Barrier Reef System (MBRS) where two Marine Reserves, Bacalar Chico of Belize and Arrecife de Xcalak of Mexico, are connected to each other.

Geography and location: BCMR is the northernmost marine reserve found in Belize. It covers 15,529 acres (approximately 63.04 square km) and is an integral part of the Belize Barrier Reef. Located in the northern part of Ambergris Caye, bordering Mexico, BCMR is divided into four management zones, each with different management approaches.

Ecological richness: The marine reserve, together with the adjacent National Park, the terrestrial area of Bacalar Chico, includes extensive tracts of mangrove and sea grass beds, patch and barrier reef, and the largest lagoon on the island of Ambergris Caye, Laguna de Cantena.

Biodiversity highlights: The BCMR is an integral part of the Belize Barrier Reef. It serves as a vital habitat and breeding ground for many species, including Horse Eye Jack, Black Grouper, marine turtles and seabirds.

An assessment made in 2010 showed that four species of turtles frequent the area, with the *Eretmochelys imbricata* (Hawksbill Turtle) being the most common. In addition, significant spawning aggregations occur off Rocky Point, with abundant species of Grouper (*Serranidae*), Rabbitfish (*Lutjanidae*) and Jackfish (*Carangidae*), especially around the full moon. Shark species were less frequently encountered, with Nurse shark (*Ginglymostoma cirratum)* having the highest number of sightings. Two species of dolphins are recorded, Atlantic spotted dolphin (*Stenella frontalis)* and Bottlenose dolphin (*Tursiops truncatus*).

Conservation and management: The Belize Fisheries Department manages and operates the BCMR. This marine reserve is a priority site in the PACT Conservation Investment Programme, where the Belize Fisheries Department is implementing a project called "Improving the Management of the Marine Reserve Network". This project aims to improve protection, biodiversity conservation and the national protected area system.

Access, use and visitation: The development of an Ecological and Educational Centre was completed in 2014. The centre provides facilities for researchers, students, and visitors interested in activities that are in line with the conservation objectives of the reserves.

Cultural, spiritual and heritage values: Several Maya archaeological sites can be found within the area, as it was once a trading zone for the Maya civilisation.

Threats and challenges: Threats to the BCMR include declining coral health due to climate change impacts, overfishing pressures and pollution. Hurricanes exacerbate existing pressures and cause direct damage, while invasive Lionfish (*Pterois volitans*) also decimate native species. Coral bleaching and reduced coral health, including disease, persist despite efforts to maintain and enhance resilience and connectivity, highlighting the need for urgent and sustained conservation action.

4.1.4 Values

The NECO table for BCMR currently shows that adequate monitoring for major site values (Criterion 3.7) is not yet fully in place. This means that BCMR is yet to fully set thresholds for success, adequately measure trends and assess status, and therefore cannot systematically determine conservation outcomes (Criteria 4.1, 4.2, 4.3).

This does not mean that conservation impact is not being achieved; it is simply that the BCMR management has yet to fully demonstrate these outcomes as a result of their management effort.

Table 4 NECO, Bacalar Chico Marine Reserve

	Major values	Success Thresholds	Condition	Trends
Natural values	Corals	Live coral cover (LCC) categories: poor (<25%), **fair (26% - 50%)**, good (51% - 75%) and excellent (>75%).	Fair (Reference HRI Report 2022)	Coral Reef health has increased steadily in the past 5 years
	Sea Turtles	Not defined	Approximately 10 nests yearly	Population stable
	Caribbean Spiny Lobster	Not defined	Not reported	Population presumed stable
Ecosystem Services	Aesthetic / scenic values for tourism	N/A	N/A	Visitation stable
	Fisheries	N/A	N/A	Catch rates / spillover stable?
	Carbon Sequestration	N/A	Unknown	Unknown
Cultural Values	Traditional Beach Trap	N/A	N/A	N/A
	Local visitation and recreation	N/A	N/A	N/A

BCMR has excellent planning and design, likely meeting the relevant IUCN Green List criteria. Recommended improvements to the monitoring and determination of success for key values, as detailed in the NECO table, that would help BCMR comply with the IUCN Green List Standard include:

- More comprehensive inclusion of major site values into conservation objectives;
- For each value, an objectively set threshold for success, based on planning and management review;
- Enhance current monitoring practice to efficiently prioritize and address questions of status and condition of these values;
- Regularly report and update on trends and adjust thresholds accordingly as context evolves.

4.1.5 Summary of IUCN Green List self-assessment IBEX

IBEX scores by component

Overall Score	Good governance	Sound design and planning	Effective management	Conservation outcomes	
66%	**69%**	**85%**	**61%**	**50%**	**Near alignment**

IBEX scores by criterion

Good governance			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
1.1 Guarantee legitimacy and voice	64%	There are defined and functioning governance arrangements that do attempt to represent the interests of civil society, and all rights-holders and stakeholders are identified and engaged. However, more effort may be required in terms of, clarity, inclusiveness, mutual respect, gender-responsiveness, land rights. Any legacy issues relating to site establishment, designation(s) or past management decisions are identified and understood, with plans in place for redress where applicable.	Establish an inclusive BCMR advisory committee which involves a range of stakeholders.
1.2 Achieve transparency and accountability	50%	There is some information available on governance structures and management provisions. Some documents and details are accessible relating to management provisions and membership of decision-making bodies. Processes for raising issues of concern and pursuing grievances may exist but are not generally known or accessible to stakeholders and rightsholders.	Develop further communication channels to ensure transparency in decision-making.
1.3 Enable governance vitality and capacity to respond adaptatively	98%	Planning and management draws on the best available knowledge of the social and ecological context of the site, using an adaptive management framework that anticipates, learns from and responds to change in its decision-making. Planning and management processes draw on multiple	Continue to implement systematic monitoring and evaluation of the governance processes.

		knowledge sources (scientific, experiential, local and traditional knowledge) as well as appropriate technology. The site has, where relevant, considered historical changes and future projections in social, ecological and climate conditions. Adaptations to projected climate change impacts are factored into governance and management structures.	
Sound design and planning			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
2.1 Identify and understand major site values	90%	There is a clear and defined area-based conservation measure in place for which the major values for conservation of nature with associated ecosystem services, and cultural values are identified and understood. The site has a current and functioning management plan (or equivalent) that is regularly revised and updated.	Maintain current focus on priority natural values. Conduct and document comprehensive inventories of socio-economic, archaeological, and cultural values.
2.2 Design for long-term conservation of major site values	100%	The site's designation, scale, connectivity and characteristics are well-aligned with conservation goals and objectives. Major site values are fully identified and understood. Design and planning can help address their long-term conservation needs. The design of the site in its landscape/seascape context supports long-term maintenance of the major site values.	Endorse and implement the Management Plan (MP) for 2023-2027 with all stakeholders.
2.3 Understand threats and challenges to major site values	61%	There is good understanding of most of the known threats and challenges to major site values, including climate change impacts. Most threats and challenges are well described with a good overview of the context and situation.	Conduct systematic threat assessments during every MP review cycle to enhance the understanding of threats. Develop and implement a climate adaptation plan to address potential impacts.
2.4 Understand social and economic context	90%	There is a good understanding of the social and economic context and this is reflected in most management goals and objectives.	Understand and assess the potential of economic activities, notably sustainable tourism and ecosystem services.
Effective management			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
3.1 Develop and implement a long-term management strategy	50%	There is a form of management strategy with some goals and objectives for the conservation of at least a few of the major site values, that has partial relevance to the ecological, social and economic context of the site. However, management approaches are limited in their scope to promote fair and functioning working conditions.	Secure a stable, diversified financial base and develop a comprehensive financial sustainability strategy. Increase the number of female staff (or experts) working for BCMR. Engage community members to contribute to management efforts and incorporate their perspectives into ongoing

		Implementation may lack adequate resourcing and material. A lack of finance may prevent effective management operations.	management e.g. via regularly scheduled meetings.
3.2 Manage ecological condition	58%	There is some planning and capacity in place to manage and maintain ecological attributes and processes of major site values, but more comprehensive management is required, and/or more major site values need to be covered by ecological management approaches.	Enhance monitoring of key species and other ecological values including doing baseline studies to set thresholds and providing capacity-development for reserve staff to track outcomes.
3.3 Manage within social and economic context of the area	67%	There is capacity and mandate in place for engaging rights-holders and stakeholders. They are incorporated into most areas of management planning and operations, covering most of the social and economic context of the site.	Strengthen zoning and regulation enforcement to support sustainable resource use and promote community involvement in conservation through training and educational programmes, discuss zonation with stakeholders e.g. via regularly convened stakeholder meetings at night (to accommodate fishing schedules).
3.4 Manage threats	33%	There is some intent, but limited capacity, to respond to threats, if identified, to recognized major site values.	Strong collaboration with other MPAs at a system level to enhance the threat management, focus on identifying list of threats, key actors and providing specific details on how to address each threat including identifying any capacity gaps in staff that will prevent acting on the identified threats.
3.5 Effectively and fairly enforce laws and regulations	83%	Laws, regulations and restrictions are fairly and effectively applied to all aspects of site management. There is adequate organization of compliance operations and coordination on enforcement. Information on regulations and their implications is fully available to local stakeholders and the public.	Increase patrol frequency and coverage, as the evidence suggests regular patrols are insufficient for optimal enforcement and threat mitigation.
3.6 Manage access, resources use and visitation	83%	When permitted, activities within the area that involve direct access to resources are compatible with and support the achievement of the area's conservation goals and objectives, meet the needs of users, and are properly described and regulated. When permitted, tourism and visitor management are compatible with and support the achievement of the area's conservation goals and objectives.	Develop and implement new and updated visitor management strategies.
3.7 Measure success	50%	All major site values are assessed through a partial set of monitoring, evaluation and	Establish a robust monitoring and evaluation framework to track

		learning programmes, that begins to objectively determine successful conservation.	conservation status of major site values and regularly publish evaluation reports to maintain transparency and inform stakeholders.
Successful conservation outcomes			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
4.1 Demonstrate conservation of major natural values	0%	The site can show partial or improved success through conservation efforts for most major natural values.	Currently, no objective metrics to demonstrate successful conservation of major natural values is in place. Measure progress against defined thresholds for each major natural value and systematically document impacts and conservation outcomes.
4.2 Demonstrate conservation of major associated ecosystem services	100%	The area is meeting or exceeding the performance thresholds for successful conservation of all major natural values (and / or management is responding to especially challenging external circumstances that would otherwise severely affect one or more of these values).	Continue and expand current efforts for ecosystem service monitoring, setting realistic thresholds and assessing trends and status.
4.3 Demonstrate conservation of cultural values	50%	The site can show partial or improved success through conservation efforts for most major cultural values.	Start to document the achievement of cultural values of BCMR and integrate this value into BCMR management and operations

4.1.6 Summary and recommendations

Summary of key achievements, and improvement needed to fully meet the IUCN Green List Standard

Governance

Local stakeholder engagement is critical in the context of Bacalar Chico Marine Reserve (BCMR), particularly given the site's interactions with local communities who rely on their traditional fishing practices and tourism resources for their livelihoods. Understanding how BCMR manages these relationships provides insight into the inclusiveness and robustness of its governance.

BCMR's governance involves a range of stakeholders, including local community representatives, Indigenous Peoples, and other relevant groups. However, the available documents do not clearly detail the extent to which these groups have decision-making power or influence over key management decisions, which is vital for assessing the equity and responsiveness of the governance structure.

According to the NPAS MEE 2023, BCMR has conducted a stakeholder analysis, but the documentation is very limited in scope and quality. BCMR's approach to stakeholder engagement is designed to be inclusive in their management plan and, according to their IBEX Green List Standard self-assessment, includes efforts to engage a broad array of community and stakeholder groups. Despite this outreach, the depth of engagement and level of participation is not clarified. It is unclear whether stakeholders can meaningfully influence outcomes or merely provide input.

Regular communication channels are mentioned, which are critical for inclusive governance, yet the effectiveness and reach of these communications in ensuring that all stakeholder voices are heard and considered are not detailed. The BCMR site managers started to make further efforts to respond to gender equality through management decision process and capacity building programmes, still, more efforts to promote and showcase these initiatives among all site stakeholders and civil society are necessary.

Design and Planning

BCMR is currently reviewing their Management Plan (2023-2027). The document development clearly involved good stakeholder participation and is recognised by the relevant authority, but it lacks complete endorsement.

The site has clearly defined objectives that are considered adequate for planning and management. They emphasize ecosystem health, stakeholder engagement, and recognition as a pristine tourism destination, aiming for an increase in 'management effectiveness' to above 67.7% by 2027, but with limited successful outcomes for this ambition to date (according to NPAS MEE 2023).

BCMR has implemented effective conservation strategies supporting biodiversity and ecosystem health, as evidenced by the targeted monitoring of key marine and terrestrial species. The BCMR design, planning and management efforts contribute to protecting critical habitats like coral reefs, mangroves, and coastal waters.

The site demonstrates that it incorporates research and monitoring data into management decisions to address changing environmental conditions and conservation needs. Overall, BCMR's design supports the achievement of conservation goals.

However, according to NPAS MEE 2023, the reserve has not conducted a systematic threat assessment within the last five years, impacting the ability to strategically manage new and emerging threats to natural values, ecosystem services and cultural values.

Effective Management

BCMR's management strategies are comprehensive, addressing ecological integrity, species of concern, and climate change adaptation. However, there is, to date, only limited implementation.

The reserve operates under a legal framework that supports conservation objectives and sustainable resource use, backed by national regulations and compliance mechanisms.

As above, the site demonstrates adaptability in its management approaches, incorporating research and monitoring data into management decisions to address changing environmental conditions and conservation needs. BCMR’s regulations are addressed and considered sufficient for management.

To manage climate change, while BCMR has begun identifying and addressing impacts, it lacks a fully integrated climate adaptation plan that systematically assesses potential impacts and implements adaptation and response strategies.

Conservation outcomes

There is an emphasis on building infrastructure like ranger stations and watch towers, which enhance the management and surveillance capabilities within the reserve, leading to potentially improved conservation outcomes. Through the NPAS MEE, the reserve has documented the presence of various terrestrial and marine indicator species, contributing to their protection and monitoring over time, and creates an opportunity to demonstrate measured conservation results. The implementation of strategies such as coral restoration and systematic monitoring activities like water quality assessments, fish assessments, and reef health monitoring show that monitoring of natural values is actively underway.

However, the IBEX assessment responses show that there is no recording system in place yet to document the achievement of thresholds for success for these ecological values, despite active monitoring effort.

In terms of ecosystem services, it is indicated a fully alignment of the data on BCMR comprehensive inventories of socio-economic resources, archaeological resources, and cultural significance, which are crucial for effective management and decision-making. The IBEX assessment indicates that access, use, and benefits from BCMR ecosystem services are compatible with the conservation ecological values of the sites.

4.1.7 Key recommendations for the Green List process

Based on suggestions made by the managers for how these could be addressed. Discussion on additional resources or changes needed to meet Green List Standard.

In summary, the sections above highlight both the needs of the Bacalar Chico Marine Reserve in their management, as well as the areas needing improvement to meet the comprehensive Standard set by the IUCN Green List.

Bacalar Chico Marine Reserve has taken significant strides in various aspects of governance, management and active marine conservation in Belize. However, to fully meet the IUCN Green List Standard, BCMR must address several critical areas. These include:

Good governance

- Ensure equitable distribution of decision-making roles among all stakeholders, particularly enhancing local community influence on outcomes affecting their livelihoods.
- Clarify and improve the effectiveness and accessibility of conflict resolution processes to ensure all grievances are fairly addressed.
- Promote gender diversity within the management team by actively seeking qualified female candidates for key positions and implementing gender-inclusive hiring practices.
- Establish a BCMR advisory committee including co-managers, local authorities, stakeholders, and rightsholders (local community representatives, fishers, tourism businesses, etc.) to enhance legitimacy, voice, and transparency in governance, addressing Criteria 1.1, 1.2, and 1.3.

Sound design and planning and effective management

The financial sustainability needs align with Indicator 3.1.6, as securing a stable and diversified financial base is essential for BCMR's long-term sustainability. This can be achieved by developing a comprehensive financial strategy that includes government funding, grants, and private donations. For example:

- Explore revenue-generating activities such as eco-tourism and sustainable resource extraction can provide essential funds for BCMR's operations.
- Establish a reserve fund will also provide financial stability during periods of funding shortages. Financial constraints should not threaten the capacity of management to achieve the site's objectives.
- Secure essential equipment such as binoculars, long-range cameras, and drones.
- Form partnerships with donors and equipment manufacturers.
- Recruit and train community members as researchers to foster local engagement and enhance data collection efforts.
- Strengthen legal frameworks to provide stronger protection and enforcement capabilities.
- Advocate for stricter penalties for illegal activities.
- Promote sustainable land and water use practices.
- Establish conflict resolution mechanisms to address climate vulnerabilities (linked to Component 1 Governance)

In conclusion, it is helpful to enhance BCMR's resilience by effectively responding to major threats and challenges to achieve planned goals and objectives (Criteria 2.3).

Demonstrate successful outcomes

- Secure necessary resources to support ongoing conservation efforts, such as habitat restoration and species monitoring.
- Establish a robust monitoring and evaluation framework to track progress and justify successful conservation outcomes.
- Adapt monitoring efforts to be more efficient and targeted towards key conservation values, setting objective thresholds of success for major conservation priorities.
- Use monitoring results to showcase trends and status of major values, demonstrating compliance with IUCN Green List criteria 3.7, 4.1, 4.2, and 4.3.

4.1.8 Additional resources (links)

- NPAS MEE 2003 Bacalar Chico Marine Reserve
- Management Plan 2004
- A governance analysis of three MPAs in Belize: Conservation objectives compromised by tourism development priorities?
- Websites: Belize Fisheries Department, UNESCO World Heritage Sites, Blue Ventures Research

4.2 Hol Chan Marine Reserve

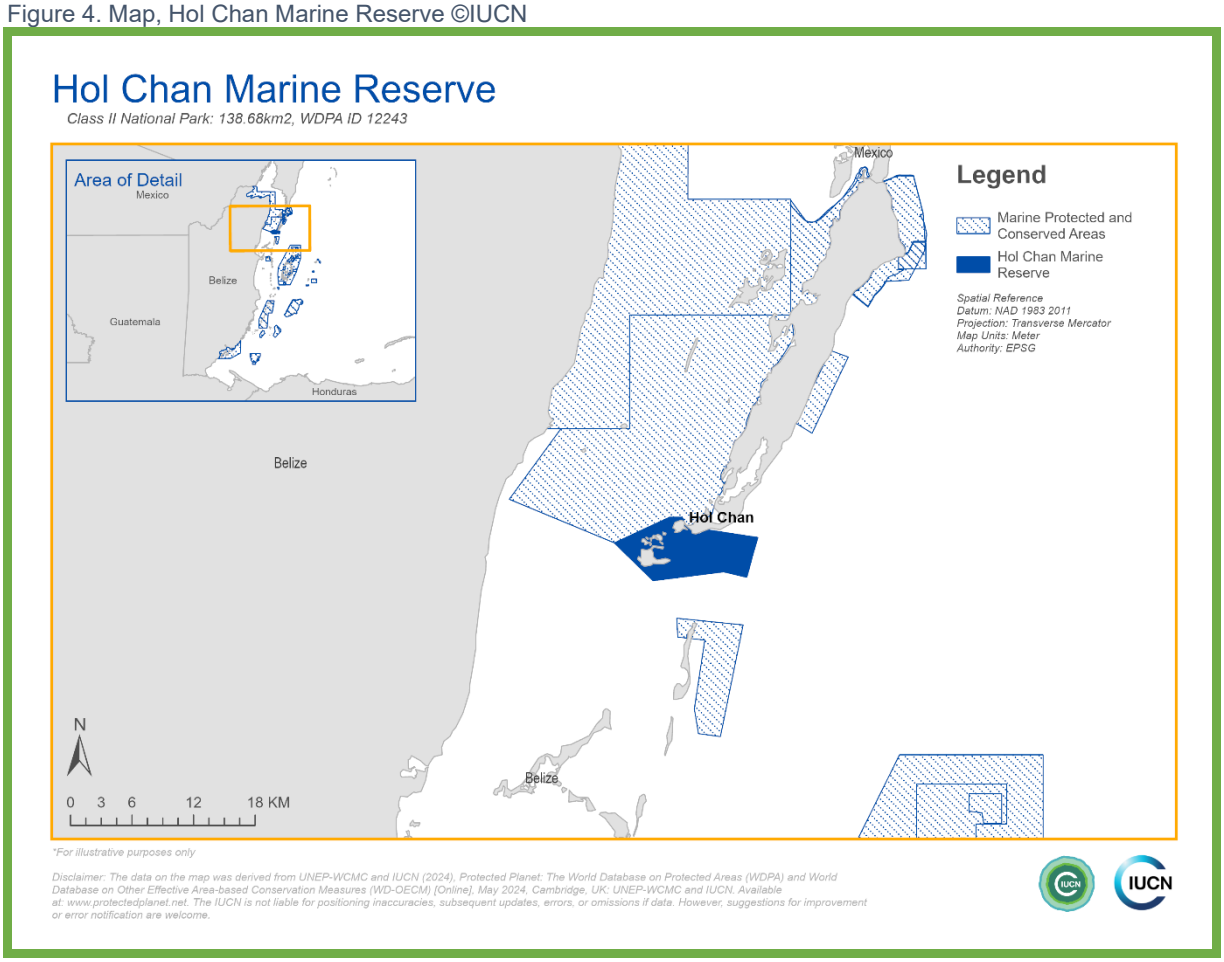
4.2.1 Key facts

Table 5. Site description, Hol Chan Marine Reserve

WDPA ID	**12243**
Reported area (km²)	**138.68**
IUCN management category	**II National Park**
Status	**Designated**
Type of designation	**National**
Status year	**1987**
Governance type	**Governance by government**
Management authority	**Fisheries Department**
Co-Management	**Hol Chan Marine Reserve**
Management plan (dates)	**2019-2024**
Management Effectiveness Evaluations	**MEE (2023)** **METT 2013, 2010** **MPA MEE 2003**

4.2.2 Site Summary

Figure 4. Map, Hol Chan Marine Reserve ©IUCN



4.2.3 Brief overview

Description of the key ecosystems and species that the area aims to protect. Any cultural, historical, or indigenous values associated with the area

The Hol Chan Marine Reserve (HCMR) was established as the first marine protected area in Belize, in July 1987. Widely recognised nationally and internationally, the HCMR is considered a model of success among marine protected areas in the Central American and Caribbean region. Renowned for its exceptional ecological attributes and track record of self-sufficiency, it serves as a blueprint for similar initiatives throughout the region.

Geographical location: Covering approximately 41,440 hectares (about 136.68 square km), HCMR is located about four miles south of San Pedro, incorporating the southernmost marine and coastal areas of Ambergris Caye. Its coordinates are approximately 17.869°N 88.003°W. Since its establishment, the HCMR has been divided into a zoning system, designed to promote sustainable use while maintaining its ecological integrity.

Ecological richness: HCMR encompasses ecologically linked coral reef, sea-grass meadows and coastal mangrove swamp habitats and is centred on the Hol Chan Channel ("Little Channel"), a natural break in the barrier reef. The marine ecosystems of Hol Chan Marine Reserve range from the shallow epipelagic waters of the continental shelf, with scattered patch reef in a reef lagoon, to the fore reef, reef crest and back reef, and the bathypelagic zone of the open seas. It also encompasses the shallow waters of the Corozal Bay / Chetumal estuarine system and creeks and lagoons of the Cayo Franco area.

Biodiversity highlights: The reserve hosts over 160 fish species, forty types of coral, and various other marine organisms. Residents include dolphins, manatees, sea turtles, eagle rays, and stingrays. Rocky areas are inhabited by lobsters, moray eels, and anemones, while mangroves serve as important nurseries for fish. Nurse sharks and southern stingrays thrive in the sea grass beds, notably in Shark Ray Alley. The reserve is home to a variety of commercially valuable species, such as fin fish, spiny lobster, and queen conch. Endangered species like manatees and sea turtles, including hawksbill, loggerhead, and green turtles, are also found here. Hol Chan Cut serves as a passage for marine life between the sea and the reef interior.

Conservation and management: HCMR operates under the authority of the Fisheries Act and is administered by a statutory body established by the Government of Belize. The HCMR Board of Trustees is form of stakeholders, including representatives from the local tourism sector, NGOs, the business community, the fishermen's cooperative and the Mayor of San Pedro Town. In addition, various committees include scientific, advisory, and stakeholder participants to ensure broad representation of the decision-making process. Since its establishment, the Marine Reserve has been expanded to include mangrove cayes threatened by development.

Access, use and visitation: Because of its rich diversity, abundant fish population and close proximity to two tourist hotspots (San Pedro and Caye Caulker), the reserve has flourished as a one of the two most visited protected areas in Belize. Management has leveraged tourism by imposing fees on foreign visitors, with proceeds reinvested into protected area management. This self-sustaining model has enabled the reserve to fund most of its operations. Staff members is engaged in enforcement, environmental education, monitoring, and research. The reserve operates offices and visitor centres in both San Pedro Town and Caye Caulker.

Threats and challenges: Over the years, the marine ecosystems of Ambergris Caye and the HCMR have faced threats such as coral bleaching, hurricanes and human activities such as overfishing and coastal development for tourism. Coral bleaching due to climate change is of particular concern. Data show that the severity of bleaching has fluctuated since 1995, with the most severe event occurring in 1998.

4.2.4 Values

Major Hol Chan Marine Reserve conservation values ('NECO table')

The NECO table for HCMR shows missing threshold levels for most site values (Criterion 3.7.2), so adequate metrics and monitoring is not yet in place. This means that HCMR is yet to set thresholds for success, adequately measure trends and assess status, and therefore cannot systematically determine conservation outcomes (Criteria 4.1, 4.2, 4.3).

Table 6. NECO, Hol Chan Marine Reserve

	Major values	Thresholds	Conditions	Trends
Natural values	Coral	N/A	Live Coral Coverage	Historical Data
	Fish	N/A	Fish Abundance Surveys	Historical Data
	Sea Turtles	N/A	Sea Turtle Nesting Beach Monitoring Program	Historical Data
Ecosystem Services	Commercial Fishing	N/A	Registered Fishers & Vessels	Historical Data
	Ecotourism	N/A	Visitor Records	Historical Data
	Research & Education	N/A	Research & Monitoring Programs. Education & Outreach Programs.	Historical Data
Cultural Values	Traditional Fishing	N/A	N/A	N/A

Recommended improvements to the monitoring and determination of success for key values, as detailed in the NECO table, that would help comply with the IUCN Green List Standard include:

- Use scientific baselines, local knowledge and management acumen to establish simple and measurable thresholds for success of natural values, ecosystem services and cultural values;
- Define further the trends for all values, based on current data and perceived changes;
- For natural values, focus the objectively set thresholds for success on the unique conditions and trends of each key species identified;
- Identify further cultural values, and set locally-agreed thresholds for success;
- Enhance current monitoring practice to efficiently prioritize and address questions of status and condition of these values;
- Regularly report and update on trends and adjust thresholds accordingly as context evolves.

4.2.5 Summary of IUCN Green List self-assessment IBEX

IBEX scores by component

Overall Score	Good governance	Sound design and planning	Effective management	Conservation outcomes	
62%	**75%**	**89%**	**73%**	**8%**	**Near alignment**

IBEX scores by criterion

Good governance			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
1.1 Guarantee legitimacy and voice	84%	There are clearly defined, legitimate equitable and functional governance arrangements, in which the interests of civil society, all substantive and legitimate rights-holders and stakeholders are fairly represented and addressed. Governance mechanisms promote gender equity and diversity. There is mutual respect for the governance arrangements in place and for the management authority among key actors. Processes are in place to redress any identified legacy issues relating to site establishment, designation(s) or past management decisions.	Develop an internal policy to guide an inclusive governance framework with the HCMR Board of Trustees strong participation. Proper and clear documentation of stakeholders' participation at different events.
1.2 Achieve transparency and accountability	40%	There is some information available on governance structures and management provisions. Some documents and details are accessible relating to management	All management decisions to be publicly available. An improved and formal grievance mechanism and advertise the complaints. Document comments and queries during the sites' tourism activities

		provisions and membership of decision-making bodies. Processes for raising issues of concern and pursuing grievances may exist but are not generally known or accessible to stakeholders and rightsholders.	(tour operator and tour guide seminars).
1.3 Enable governance vitality and capacity to respond adaptatively	100%	Planning and management draw on the best available knowledge of the social and ecological context of the site, using an adaptive management framework that anticipates, learns from and responds to change in its decision-making. Planning and management processes draw on multiple knowledge sources (scientific, experiential, local and traditional knowledge) as well as appropriate technology. The site has, where relevant, considered historical changes and future projections in social, ecological and climate conditions. Adaptations to projected climate change impacts are factored into governance and management structures.	Evaluation of methodology for enforcement, research, monitoring and educational outreach needs to be documented (existing mechanism is the annual reports per department). Made available all reports to the HCMR Board of Trustees.
Sound design and planning			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
2.1 Identify and understand major site values	100%	There is a clear and defined area-based conservation measure in place for which the major values for conservation of nature with associated ecosystem services, and cultural values are identified and understood. The site has a current and functioning management plan (or	Maintain the understanding of major site values (natural values, ecosystem services, and cultural values).

		equivalent) that is regularly revised and updated.	
2.2 Design for long-term conservation of major site values	100%	The site's designation, scale, connectivity, and characteristics are well-aligned with conservation goals and objectives. Major site values are fully identified and understood, and design and planning can help address their long-term conservation needs. The design of the site in its landscape/seascape context supports long-term maintenance of the major site values.	Implement major site values with involvement of all stakeholders and focus on its long-term maintenance.
2.3. Understand threats and challenges to major site values	85%	There is a good understanding of all current threats and challenges to major site values, including climate change impacts. All threats and challenges are described in sufficient detail to enable informed planning and management to adapt to or mitigate them.	Conduct assessment to better understand threats to major natural values and ecosystem services and identify appropriate actions.
2.4 Understand social and economic context	72%	There is an understanding of the social and economic context presented, and this is reflected in some management goals and objectives but lacks stakeholder mapping.	Conduct assessment to better understand site impact on local economy and social balances of the region.
Effective management			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
3.1 Develop and implement a long-term management strategy	73%	There is an operational management strategy with goals and objectives for the conservation of most major site values, and address most of the ecological, social and economic context of the site. Management approaches contribute to some extent to fair and functioning	Increase the number of staff to implement activities safely and efficiently. Improve staff conditions, training and turnover strategies. Secure a stable, diversified financial base and develop a comprehensive financial sustainability strategy.

		working conditions. Implementation is mainly supported by adequate resourcing and material and tracked through a work planning system. However, a lack of financial resources may be preventing core management operations.	
3.2 Manage ecological condition	67%	There is planning and capacity in place to manage and maintain ecological attributes and processes of major site values, but more comprehensive approaches may be required, and/or a more comprehensive suite of major site values should be considered.	Fundraising and financial strategies are needed to support strategies and activities already designed to protect the site´s ecological features identified. Develop recruitment strategies to increase the number of rangers and other PA staff. Focus on recruitment from local communities.
3.3 Manage within social and economic context of the area	100%	There is clear capacity and mandate in place for engaging rights-holders and stakeholders. They are well incorporated into management planning and operations, ensuring that management is aligned with the social and economic context of the site.	Maintain the efforts to regularly update and identify new trends of socio-economic contexts of the site
3.4 Manage threats	67%	Most threats are being actively responded to, so that their impact is largely mitigated on the majority of major site values identified, and on the overall	Design and implement a work program with activities that effectively respond to the main threats to cultural values. Engage community members to understand cultural values and

		achievement of the site's goals and objectives.	traditional approaches to protecting them.
3.5 Effectively and fairly enforce laws and regulations	79%	Laws, regulations and restrictions are applied to most aspects of site management. There is adequate organization of compliance operations and some coordination on enforcement. Information on regulations and their implications is mostly available to local stakeholders and the public.	The site needs to increase the number of rangers to conduct effective surveillance throughout the site. Rangers need to be sufficiently equipped and trained to conduct safe and effective surveillance. Specific Standard Operational Procedures for HCMR would be useful. Prioritise recruitment from local communities.
3.6 Manage access, resources use and visitation	95%	When permitted, activities within the area that involve direct access to resources are compatible with and support the achievement of the area's conservation goals and objectives, meet the needs of users, and are properly described and regulated. When permitted, tourism and visitor management are compatible with and support the achievement of the area's conservation goals and objectives.	Improve the site´s services and facilities in order to meet the needs of different audiences and age groups, including disadvantaged people.
3.7 Measure success	30%	Some major site values are assessed through a limited set of monitoring, evaluation and learning programmes. There is a monitoring system in place. There is no system for monitoring the performance standards. There is only baseline and historical data collected.	Set baselines for key species and site values, set target values corresponding to management plan and identify fundraising and capacity needs to achieve desired conservation outcomes.

		There are no thresholds set in place.	
Successful conservation outcomes			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
4.1 Demonstrate conservation of major natural values	0%	There are no discernible conservation outcomes for any major natural values.	Set up a documenting process of each natural value threshold.
4.2 Demonstrate conservation of major associated ecosystem services	25%	The site can show limited success from conservation efforts for some major ecosystem services.	Increase the capacity of the demonstration of major ecosystem services.
4.3 Demonstrate conservation of cultural values	0%	There are no discernible conservation outcomes for any major cultural values.	Set up a documenting process through the monitoring programme of each cultural values.

4.2.6 Summary and recommendations

*Summary of the key achievements and identification of areas where the protected area **does not** meet Green List Standard.*

Governance

The Hol Chan Marine Reserve (HCMR) has made significant progress in ensuring good governance, as evidenced by both the self-assessment exercise of IBEX and NPAS MEE assessments.

The reserve provides clear and functioning governance arrangements that are planned to be effectively represented by a diverse range of stakeholders. According to the IBEX assessment, HCMR scored 84% for legitimacy and stakeholder participation, highlighting well-documented stakeholder involvement in management processes. This inclusion ensures that diverse voices are heard, promoting legitimacy and comprehensive decision-making. Additionally, HCMR has demonstrated good governance vitality and capacity for adaptive management, self-assessing an excellent score in this area in IBEX. The site employs diverse knowledge sources, including scientific, local, and traditional knowledge, and uses this information to adapt to changing conditions. This adaptability is crucial for maintaining effective governance, responding to new challenges, and maintaining adaptative management.

However, the IBEX self-assessment indicated that the **HCMR will need to improve the transparency and accountability as the key concerns**. The grievance mechanism remains an informal process to date, where a proper mechanism will need to be developed. It exists but is not formally advertised or publicly accessible.

HCMR's communications outlets, such as the main website, need updating to access essential governance documents, such as management provisions and decision-making body memberships. Additionally, while a grievance mechanism exists, it is not well-known or formally advertised, limiting stakeholder awareness and accessibility.

Design and Planning

The site has clearly defined objectives that are considered adequate for planning and management (according to NPAS MEE 2023), focusing on effective monitoring of ecosystem health, the restoration of critical habitats, and adaptation to climate change, contributing to the consolidation of the Northern Belize Coastal Complex through results-oriented enforcement, community outreach and engagement, good governance, and enhanced management effectiveness.

The site demonstrates that it incorporates research and monitoring data into management decisions to address conservation needs. Overall, HCMR's design supports the achievement of conservation goals. However, while the threats criterion IBEX score is 85%, which is very close to full Green List alignment, an additional assessment would help better understand threats to major natural values and ecosystem services and identify appropriate actions.

Additionally, the site's impact on local economy and social balances of the region requires further analysis to ensure Green List alignment.

Effective Management

HCMR has a current management plan which includes the goals and objectives for management of the natural values and social and economic objectives identified,

management strategies and activities to achieve these goals over the long term and an indication of the activities that are allowed or prohibited in the site and any zoning or temporal/spatial restrictions on access to or use of the site. Besides that, activities are being conducted and implemented as described in the Management Plan. Even so, more staff are required, and financial constraints need to be addressed to increase monitoring and enforcement activities.

There is clear capacity and mandate in place for engaging rights-holders and stakeholders. They are well incorporated into management planning and operations, ensuring that management is aligned with the social and economic context of the site. This is a great achievement considering HCMR's importance for Belize's tourism industry.

While laws, regulations, and restrictions are applied to most aspects of site management, the site needs to increase the number of rangers to conduct effective surveillance. Rangers need to be sufficiently equipped and trained to conduct safe and effective surveillance and Specific Standard Operational Procedures for HCMR would be useful. It is important to highlight that the types and levels of permitted activities are clearly defined and are compatible with the conservation of major site values, also that efforts have been made to accommodate needs for local stakeholders.

Conservation outcomes

HCMR needs more efficient and targeted monitoring efforts to demonstrate successful conservation outcomes for its major values, and therefore achieve compliance with IUCN Green List criteria. According to the IBEX self-assessment results, no targeted monitoring systems in place could help demonstrate clear conservation outcomes for any major natural and cultural values. Meanwhile, the HCMR shows limited success in conservation efforts for some major ecosystem services.

4.2.7 Key recommendations for the Green List process

Based on suggestions made by the managers for how these could be addressed. Discussion on additional resources or changes needed to meet Green List Standard.

To address these shortcomings based on the pre-assessment above, several actions are recommended:

Ensure inclusive governance

For Governance component, firstly, improving transparency and accountability reflected in Criteria 1.2, involves updating the HCMR website to include all relevant documents and details about governance structures.

The NPAS MEE indicated that, for comprehensive stakeholder engagement, it is essential to conduct regular and systematic stakeholder analyses to identify and engage all relevant groups. Several key action are to:

- Establish an advisory committee with diverse stakeholder representation to enhance inclusiveness and ensure that governance processes reflect a broad range of interests.
- Formally advertise the grievance mechanism through workshops, meetings, and online platforms will ensure it is well-known among stakeholders and rightsholders
- Include a feedback mechanism to learn from past experiences and adapt management action plans.

Sound design, planning and effective management

In terms of Design and Planning, threats to major natural values and ecosystem services need to be identified so that appropriate actions can be taken. Additionally, the site's impact on local economy and social balances of the region needs to be assessed. Regarding Criteria 2.3 and 3.1 on understanding and responding to threats, human resources also need bolstering. Increasing the number of staff, especially marine rangers, will enhance protection and community involvement. Promoting gender diversity within the management team through inclusive hiring practices will create a balanced and supportive work environment.

To ensure Criterion 3.6 on visitor management, it is recommended to develop a financial strategy that includes all diverse financial sources. This includes revenue-generating activities like eco-tourism and sustainable resource extraction. We also recommend establishing a reserve fund for financial stability during periods of funding shortages. Additional recommendations include:

- Improve staff conditions, training and turnover strategies. Develop recruitment strategies to increase the number of rangers and other PA staff.
- Fundraising and financial sustainability are needed to support strategies and activities already designed to protect the site´s ecological features identified.
- Design and implement a work program with activities that effectively respond to the main threats to cultural values.
- Improve the site´s services and facilities in order to meet the needs of different audiences and age groups, including disadvantaged people.

Demonstrate successful outcomes

Maintaining and enhancing identified conservation activities is essential for HCMR. Securing the necessary resources to support ongoing efforts and establishing a robust monitoring and evaluation framework will help track progress and justify successful conservation outcomes (Green List Criteria 3.7, 4.1, 4.2, 4.3). Some key recommendations are:

- HCMR to adapt monitoring efforts to become more efficient and focus on key conservation values
- Set objective thresholds of success for each major conservation priority and use monitoring results to showcase trends and status of major values
- Regularly report and update on these trends to adjust thresholds accordingly

4.2.8 Additional resources (links)

- Management documents: HCMR Management Plan 2019-2024
- Suggested websites: https://www.holchanmarinereserve.org/, Belize Fisheries Department, UNESCO World Heritage Sites, BIOPAMA, Secret Central America

4.3 Blue Hole Natural Monument

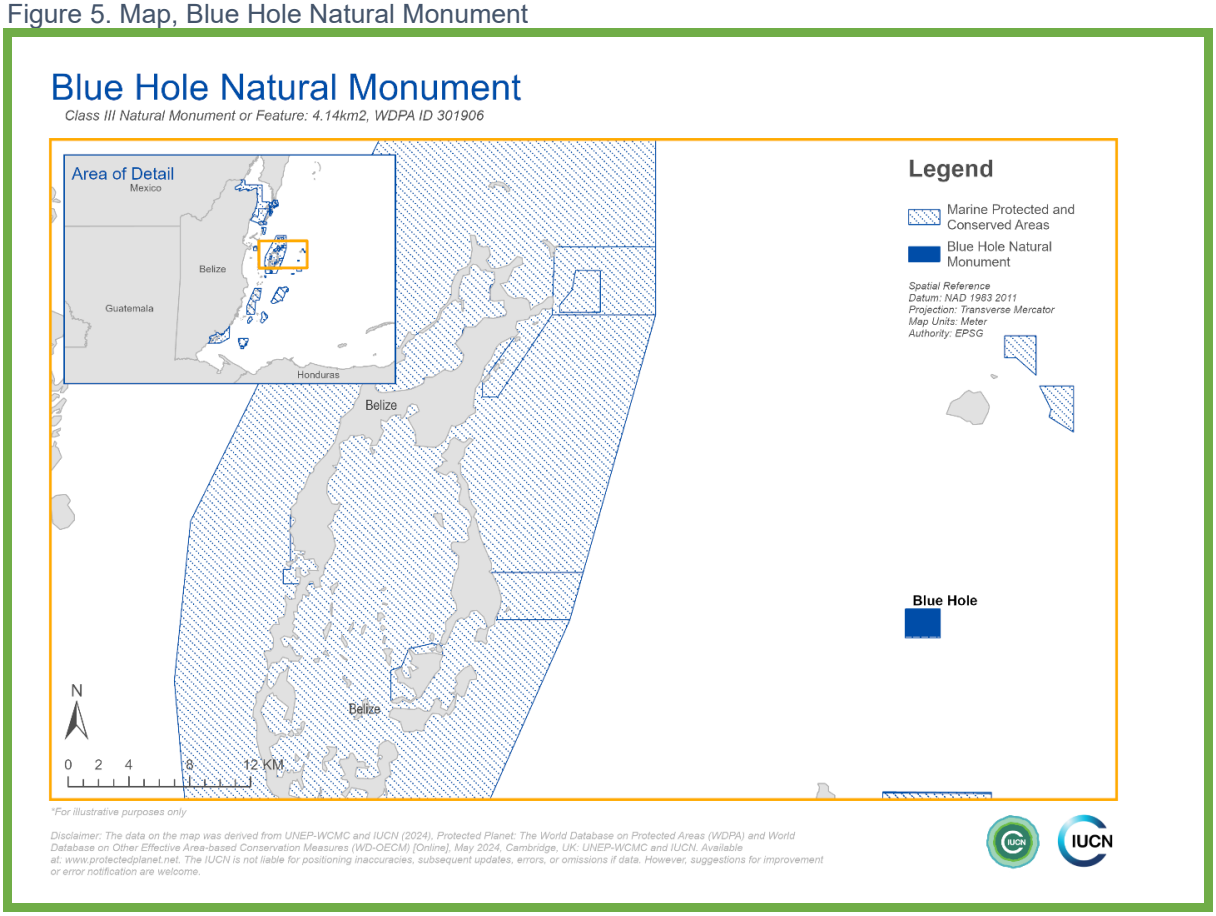
4.3.1 Key facts

Table 7. Site description, Blue Hole Natural Monument

WDPA Id	**301906**
Reported area (km²)	**4.14 km²**
IUCN management category	**III Natural monument or feature**
Status:	**Designated**
Type of designation	**National**
Status year	**1996**
Governance type	**Shared governance**
Management authority	**Forest Department**
Co-Management	**Belize Audubon Society**
Management plan (dates)	**2017-2021**
Management Effectiveness Evaluations	**MEE (2023)** **METT 2010, 2013**

4.3.2 Site Summary

Figure 5. Map, Blue Hole Natural Monument



4.3.3 Brief overview

Description of the key ecosystems and species that the area aims to protect. Any cultural, historical, or indigenous values associated with the area

The Blue Hole Natural Monument (BHNM), or The Great Blue Hole, is considered the largest underwater sinkhole in the world. It comprises a vast network of interconnected underwater caverns with extraordinary formations including stalactites, stalagmites and stalagmite plates and columns. It is an important part of the Belize Barrier Reef Reserve System, a UNESCO World Heritage Site, and a key component of the Mesoamerican Barrier Reef (MABR), the second largest barrier reef system in the world.

Geography and Location: BHNM is located near the centre of Lighthouse Reef, one of Belize's three atolls, located around 80km east of mainland Belize. It is known for its large circular sinkhole, approximately 300m in diameter and 125m deep, which formed an estimated 15,000 years ago during the Pleistocene era. BHNM has no land and lacks visitor facilities aside from mooring buoys for dive boats. Covering approximately 4.14 square km (414 ha), it's situated at coordinates UTM 443519; 1914493.

Ecological Richness: The BHNM has been recognized for its uniqueness contribution to Belize's reef system, the largest, and possibly the least impacted reef complex in the Atlantic–Caribbean area. BHNM is also part of the larger Lighthouse Reef Atoll, with mangrove cayes, coral reefs and seagrass providing key interconnected ecosystems critical to the long-term viability of marine resources of the area. The close connectivity of mangroves, whilst not within the protected area itself, is vital to maintaining the productivity of the coral reefs and seagrass beds of the central lagoon and Atoll wall.

Biodiversity Highlights: The Blue Hole Natural Monument's shallow-water reef and adjacent seagrass provide a vital no-take zone that supports a wide variety of marine life and helps to sustain commercial species such as conch and lobster. In addition, the monument serves as an important scientific resource, acting as a large sediment trap that provides insights into past geological events through the analysis of sediment cores. The Monument is also recognised in the WWF Ecoregional Plan as potentially hosting a unique array of endemic and cryptic species, highlighting its importance for biodiversity conservation.

Conservation and Management: Established in 1996 to protect the geological features of the sinkhole, BHNM is one of Belize's four Natural Monuments and is managed by the Belize Audubon Society in collaboration with the Forest Department. For this MPA the management guidelines follow the National Parks System Act, which allows only non-extractive activities such as research, education and tourism for this site. These regulations contribute to Belize's national no-take zones and ensure the conservation of natural resources. BHNM established an Advisory Committee to emphasise the involvement and engagement of their stakeholders.

Sustainable Use and Tourism: With its vertical cliffs and stunning stalactite formations, the BHNM is a world-renowned diving hotspot, attracting enthusiasts from all over the world and firmly establishing itself as one of Belize's most iconic tourist destinations. BHNM provides a sustainability mechanism for maintaining not only this protected area, but also others under Belize Audubon Society management Whilst the BHNM is non-extractive, it plays an important role in in supporting the fisheries industry of Lighthouse Reef, part of a traditional industry that provides employment for over 2,750 fishers.

Cultural and historical values: The discovery of four small coral mounds, a large conch shell midden, and pottery shards from the Postclassic period on Northern Caye suggests that the Mayan civilization reached Lighthouse Reef Atoll, despite its distance from the

mainland. In general, stakeholder communities of Lighthouse Reef Atoll are the northern coastal communities and northern cayes, settled in the 1850s by Mestizo refugees from the Mexican Caste War.

4.3.4 Values

The 'natural, ecosystem, cultural outcomes' NECO table for BHNM shows threshold level for all site values (Criterion 3.7.2). This means that BHNM has partially set thresholds for success. However, the conditions and trends to be able to systematically determine conservation outcomes are currently missing (Criteria 4.1, 4.2, 4.3).

	Major values	Thresholds	Conditions	Trends
Natural values	Coral Reef	Live coral cover: Blue hole (2019) – 26%	Live coral cover: Blue hole (2023) – 18%	N/A
	Carbon Sinks	35	N/A	A national report is generated by the GOB that includes this information
Ecosystem Services	Job availability (Tourism)	80-90% direct employment tourguides	N/A	N/A
Cultural Values	Education and awareness with traditional fishers	Engage 150 fisherfolk	N/A	N/A

Table 8. NECO, Blue Hole Natural Monument

Recommended improvements to the monitoring and determination of success for key values, as detailed in the NECO table, that would help comply with the IUCN Green List Standard include:

- For natural values, identify conditions and trends of each key species identified to adjust the threshold;
- Define performances of the ecosystem services and their conditions and trends
- Identify further cultural values and their conditions and trends
- Enhance current monitoring practice to efficiently prioritize and address questions of status and condition of these values;
- Regularly report and update on trends and adjust thresholds accordingly as context evolves.

4.3.5 Summary of IUCN Green List self-assessment IBEX

IBEX scores by component

Overall Score	Good governance	Sound design and planning	Effective management	Conservation outcomes	
72%	**98%**	**93%**	**80%**	**8%**	**Near alignment**

IBEX scores by criterion

Good governance			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
1.1 Guarantee legitimacy and voice	100%	There are clearly defined, legitimate equitable and functional governance arrangements, in which the interests of civil society, all substantive and legitimate rights-holders and stakeholders are fairly represented and addressed. Governance mechanisms promote gender equity and diversity. There is mutual respect for the governance arrangements in place and for the management authority among key actors. Processes are in place to redress any identified legacy issues relating to site establishment, designation(s) or past management decisions.	Enhance the capacity of the BHNM Advisory Committee for legitimacy and stakeholder participation, reflecting comprehensive stakeholder engagement and inclusive decision-making processes.
1.2 Achieve transparency and accountability	100%	Governance structures are clear and well-communicated. Management provisions are documented and available and regularly revised. Membership of key decision-making bodies is public and there are accessible means to communicate on issues	Make the documents of all management decisions available on the website and other communication channels to enhance accessibility. Make visible grievance process and clear mechanisms of response

		of concern. Decision-making processes are transparent, and their results well-documented and published. There is an active process for addressing disputes and grievances related to governance and management., with response mechanisms in place.	available to stakeholders and rightsholders.
1.3 Enable governance vitality and capacity to respond adaptatively	94%	Planning and management draws on the best available knowledge of the social and ecological context of the site, using an adaptive management framework that anticipates, learns from and responds to change in its decision-making. Planning and management processes draw on multiple knowledge sources (scientific, experiential, local and traditional knowledge) as well as appropriate technology. The site has, where relevant, considered historical changes and future projections in social, ecological and climate conditions. Adaptations to projected climate change impacts are factored into governance and management structures.	Maintain and increase the capacity for adaptive management
Sound design and planning			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
2.1 Identify and understand major site values	100%	There is a clear and defined area-based conservation measure in place for which the major values for conservation of nature with associated ecosystem services, and cultural values are identified and understood. The site has a current and functioning management plan (or equivalent)	Maintain the efforts to regularly revise the BHNM's values.

		that is regularly revised and updated.	
2.2 Design for long-term conservation of major site values	80%	The site's designation, scale, connectivity, and characteristics are well-aligned with conservation goals and objectives. Major site values are fully identified and understood, and design and planning can help address their long-term conservation needs. The design of the site in its landscape/seascape context supports long-term maintenance of the major site values.	Review and implement MP with all stakeholders.
2.3. Understand threats and challenges to major site values	100%	There is a good understanding of all current threats and challenges to major site values, including climate change impacts. All threats and challenges are described in sufficient detail to enable informed planning and management to adapt to or mitigate them.	Conduct systematic threat assessments during every MP review cycle to update list of threats and corresponding actions.
2.4 Understand social and economic context	90%	There is a good understanding of the social and economic context, and this is reflected in most management goals and objectives.	Conduct assessment to better understand site impact on social balances of the region.
Effective management			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
3.1 Develop and implement a long-term management strategy	77%	There is an operational management strategy with goals and objectives for the conservation of most major site values, and address most of the ecological, social and economic context of the site. Management approaches contribute to some extent to fair and functioning working conditions. Implementation is mainly supported by adequate resourcing	Increase the number of staff to implement activities safely and efficiently. Secure a stable, diversified financial base and develop a comprehensive financial sustainability strategy.

		and material and tracked through a work planning system. However, a lack of financial resources may be preventing core management operations.	
3.2 Manage ecological condition	100%	The site can clearly demonstrate that ecological attributes and processes are being managed actively to maintain the site's major site values.	Maintain the efforts to demonstrate the good ecological condition.
3.3 Manage within social and economic context of the area	100%	There is clear capacity and mandate in place for engaging rights-holders and stakeholders. They are well incorporated into management planning and operations, ensuring that management is aligned with the social and economic context of the site.	Maintain and regularly update with the new trends of social and economic context of BHNM.
3.4 Manage threats	50%	Some threats are identified and being responded to, so that their impact is lessened on some major site values identified, or on the achievement of the site's goals and objectives.	Design and implement a work program with activities that effectively respond to the main threats to natural and cultural values. Identify, document and implement traditional conservation practices that can be leveraged here.
3.5 Effectively and fairly enforce laws and regulations	94%	Laws, regulations and restrictions are fairly and effectively applied to all aspects of site management. There is adequate organization of compliance operations and coordination on enforcement. Information on regulations and their implications is fully available to local stakeholders and the public.	The site needs to increase the number of rangers to conduct effective surveillance throughout the site. Rangers need to be sufficiently equipped and trained to conduct safe and effective surveillance. Recruitment from local communities should be prioritised.
3.6 Manage access, resources use and visitation	97%	When permitted, activities within the area that involve direct access to resources are compatible with and support the achievement of the area's conservation goals and	Improve the site´s services and facilities in order to meet the needs of different audiences and age groups, including disadvantaged people.

		objectives, meet the needs of users, and are properly described and regulated. When permitted, tourism and visitor management are compatible with and support the achievement of the area's conservation goals and objectives.	
3.7 Measure success	40%	All major site values are assessed through a partial set of monitoring, evaluation and learning programmes, that begins to objectively determine successful conservation.	Set monitoring, evaluation and learning programmes to define the site thresholds for all important MPA values.
Successful conservation outcomes			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
4.1 Demonstrate conservation of major natural values	0%	There are no discernible conservation outcomes for any major natural values.	Set up a documenting process of each natural value threshold for BHNM, as suggested for NECO table.
4.2 Demonstrate conservation of major associated ecosystem services	25%	The site can show limited success from conservation efforts for some major ecosystem services.	Improve the capacity of the demonstration of major ecosystem services.
4.3 Demonstrate conservation of cultural values	0%	There are no discernible conservation outcomes for any major cultural values.	Set up a documenting process through the monitoring programme of each cultural values.

4.3.6 Summary and recommendations

Summary of the key achievements and identification of areas where the protected area **does not** meet Green List Standard.

Governance

The Blue Hole Natural Monument (BHNM) has established strong governance structures that guarantee legitimacy and stakeholder voice. The co-site managers of BHNM demonstrated excellent legitimacy and stakeholder participation, reflecting comprehensive stakeholder engagement and inclusive decision-making processes. This includes the existing Advisory Committee since 2007 to emphasise on the involvement and engagement of stakeholders and in its role in disseminating information to stakeholders.

The IBEX indicated that BHNM demonstrates excellent capacity for adaptive management. The management have incorporated diverse knowledge sources, including scientific and local knowledge, ensuring effective responses to changing conditions.

transparency and accountability mechanisms require improvement, as although the governance structures are sound, the information is not easily accessible to all stakeholders. The BHNM Management Plan suggests making these documents available on the website and other communication channels to enhance accessibility.

Design and Planning

BHNM’s 5-year Management Plan (MP) (2017-2021), which also covers Half Moon Caye Natural Monument, was designed with input from key stakeholders from all concerned sectors (including fishing and tourism).

The site has clearly defined objectives that are considered adequate for planning and management, focusing on protecting biodiversity, maintaining commercial fish stocks, and building stakeholder support and benefits.

While threats have been adequately assessed in the past, systematic checks need to be conducted during every MP review cycle to update list of threats and identify appropriate actions.

Additionally, while the understanding of the economic and social impact criterion nearly achieves full Green List alignment, the site’s impact on social balances of the region would benefit from further analysis.

The site demonstrates that it incorporates research and monitoring data into management decisions to address conservation needs. Overall, BHNM’s design supports the achievement of conservation goals.

Effective Management

BHNM´s management plan needs to be updated. This process should describe the objectives, strategies and activities needed for management of the site's natural, cultural and socioeconomic values. The site needs to increase the number of staff in order to enforce regulations and implement other activities as described in the BHNM management plan.

There is clear capacity and mandate in place for engaging rights-holders and stakeholders. They are well incorporated into management planning and operations, ensuring that management is aligned with the social and economic context of the site. This is a great achievement considering the importance that BHNM ecosystem services provision have, especially for local communities who work on tourism services and/or fishing. Another key achievement is that the site can clearly demonstrate that ecological attributes and processes are being managed actively to maintain the major site values.

Some threats are identified and being responded to, so that their impact is lessened on some major site values identified, so it is required to design and implement a work program with activities that effectively respond to the main threats to natural and cultural values as well as the site's goals and objectives.

Even though, laws, regulations and restrictions are applied to most aspects of site management, the site needs to increase the number of rangers to conduct effective surveillance throughout the site. Rangers need to be sufficiently equipped and trained to conduct safe and effective surveillance and Specific Standard Operational Procedures for BHNM would be useful.

It is important to highlight that the types and levels of permitted activities are clearly defined and are compatible with the conservation of major site values, also that efforts have been made to accommodate needs for local stakeholders.

Conservation outcomes

BHNM has limited documentation demonstrating the conservation of major natural, ecosystem, and cultural values. This gap is reflected in low scores for these criteria, indicating the need for a more systematic approach to monitoring and reporting conservation outcomes.

4.3.7 Key recommendations for the Green List process

Based on suggestions made by the managers for how these could be addressed. Discussion on additional resources or changes needed to meet Green List standard.

Based on suggestions made by the managers and a thorough review of the IBEX and the current management plan, this section highlights the needs of the Blue Hole Natural Monument (BHNM) and the areas requiring improvement to meet the comprehensive standards set by the IUCN Green List. Some key areas are:

Ensure good governance

There is a need to establish a comprehensive stakeholder analysis and engagement strategy and then inform more publicly. Some action plans can include:

- Enhance the capacity of the BHNM Advisory Committee with more diversity, not only stakeholders, but also rightsholders representation to ensure inclusive decision-making. This is to accommodate more rigorous and systematic monitoring and evaluation of governance processes
- More visibility of the decision-making process and the submitted complaints

Sound design and planning, and effective management

In terms of Sound Design and Planning, the main recommendation consists of conducting an assessment of the site's impact on social balances of the region, in order to ensure the full understanding of the social context. This includes securing a stable, diversified financial base and develop a comprehensive financial sustainability strategy. Other key recommendations including Effective Management are as follows:

- Keep abreast of the latest trends in the social and economic contexts of the area.
- Regularly update and adjust the management plan to ensure the BHNM's activities remain relevant and beneficial to the local community and economy.
- Increase the number of rangers and ensure they are well-equipped and trained.
- Provide proper equipment and training to enable rangers to perform their duties safely and efficiently, enhancing overall security and conservation outcomes.
- Maintain and demonstrate the good ecological condition of the reserve.
- Regularly monitor and adapt conservation strategies to reflect the latest scientific findings and environmental changes, sustaining the health of the BHNM's ecosystems.
- Improve services and facilities to cater to the diverse needs of visitors and ensure inclusivity.
- Focus enhancements on accessibility and engagement for different audiences and age groups, including disadvantaged individuals, ensuring everyone can benefit from and contribute to the reserve.

Demonstrate conservation outcomes

It is recommended to set objective thresholds of success for each major conservation priority. This does not necessarily mean that solid conservation achievements are not taking place, but that the site is not able to articulate, defend or promote the key areas where it is succeeding. As such, there is a risk that key values may suffer downward trends without a rapid or appropriate management response. It is recommended to:

- Incorporate success thresholds and status metrics into the MPA monitoring system. A monitoring system could be useful as monitoring results to showcase trends and status of major values
- Regularly update the thresholds adapted to trends and changes

4.3.8 Additional resources (links)

- Management documents: Half Moon Caye Natural Monument and Blue Hole Natural Monument 2017-2021

4.4 Half Moon Caye Natural Monument

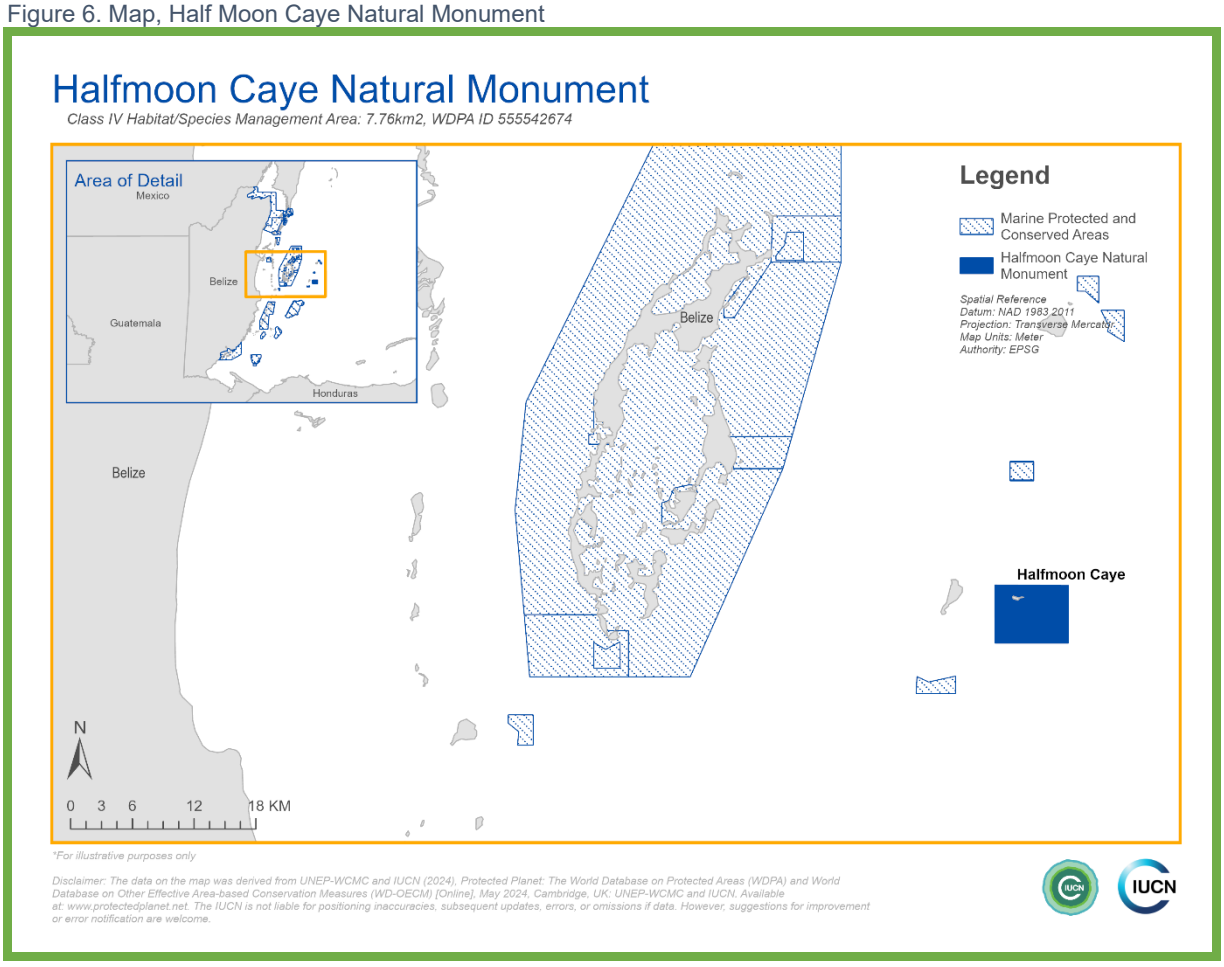
4.4.1 Key facts

Table 9. Site description: Half Moon Caye Natural Monument

WDPA ID	**2213**
Reported area (km^2)	**39.25 km²**
IUCN management category	**II National Park**
Status:	**Designated**
Type of designation	**National**
Status year	**1982**
Governance type	**Shared governance**
Management authority	**Forest Department**
Co-Management	**Belize Audubon Society**
Management plan (dates)	**2017-2021**
Management Effectiveness Evaluations	**MEE (2023)** **METT 2006, 2008, 2010, 2013**

4.4.2 Site Summary

Figure 6. Map, Half Moon Caye Natural Monument



4.4.3 Brief overview

Description of the key ecosystems and species that the area aims to protect. Any cultural, historical, or indigenous values associated with the area

Half Moon Caye Natural Monument (HMCNM) consists of both terrestrial and marine components, within a total reserve area of approximately 39.25 square km (3,954 ha). HMCNM was the first nature reserve to be established in Belize under the National Park System Act in 1981. It is also the first marine protected area in Central America. HMCNM is an important part of the Belize Barrier Reef Reserve System, a UNESCO World Heritage Site, and a key component of the Mesoamerican Reef (MAR), the second-largest barrier reef system in the world.

Geography and location: HMCNM located at UTM 442999; 1902099 lies on the southeastern point of Lighthouse Reef Atoll, the most easterly of Belize's three Atolls. The marine section of HMCNM, covering 9,727 acres, features a reef wall that drops to over 3,000 feet and offers exceptional water clarity. While the Half Moon Wall, known for its diverse coral formations, is home to over 280 species of fish. The caye's sandy beach is an important nesting site, while the atoll drop-off hosts three important spawning aggregations.

Ecological richness: The Half Moon Caye Natural Monument has both terrestrial and marine components, preserving several important ecosystems and contributing to the sustainability of commercial fish species. It is recognised for its unique contribution to Belize's reef system, the largest and possibly least impacted reef complex in the Atlantic-Caribbean region. HMCNM is also part of the larger Lighthouse Reef Atoll, where mangrove cayes, coral reefs, and seagrass form key interconnected ecosystems critical to the long-term viability of the area's marine resources. The caye is also important for its representation of littoral forest, one of the most threatened ecosystems in Belize.

Biodiversity highlights: HMCNM is home to endangered species such as the Hawksbill turtle and Nassau grouper, as well as colonies of red-footed boobies and endemic leaf-toed geckos. Half Moon Caye is of regional importance as a breeding ground for commercial finfish such as grouper and snapper. Half Moon Caye itself provides a nesting site for sea turtles - loggerhead, green and hawksbill - which is important for the survival of these marine reptiles in the region. The deeper waters of the drop off also provide important habitat for pelagic and migratory species such as marlin, sailfish, wahoo, kingfish, tuna (bonito, yellowfin), mackerel, jacks (amberjack, horse-eye, crevalle) and shark. The Half Moon Wall is known for its diverse coral formations that harbour over 280 fish species, including five critically endangered ones.

Conservation and management: HMCNM is one of four natural monuments in Belize, and it is currently managed by the Belize Audubon Society under a co-management agreement with the Forest Department. It was first proclaimed a protected area in 1928 in recognition of its importance as a nesting colony for the Red-footed Booby and the magnificent Frigatebird. For this MPA the management guidelines follow the National Parks System Act, which allows only non-extractive activities such as research, education and tourism for this site. These regulations contribute to Belize's national no-take zones and ensure the conservation of natural resources.

Access, use and visitation: HMCNM serves as the operational headquarters for managing both HMCNM and the Blue Hole, with new facilities for warden housing, research accommodation, visitor centre, picnic area, bathroom facilities and campground. Half Moon Caye is also important nationally for its value as a tourist destination, as it is considered one of the most popular dive sites in Belize, attracting thousands of divers to the area each year and providing a sustainability mechanism for the maintenance of not only this protected

area, but others under the management of the Belize Audubon Society. Whilst the HMCNM is non-extractive, it plays an important role in in supporting the fisheries industry of Lighthouse Reef, part of a traditional industry that provides employment for over 2,750 fishers.

Cultural, spiritual and heritage values: As with Blue Hole Natural Monument, archaeological discoveries suggest that the Mayan civilization reached Lighthouse Reef Atoll, despite its distance from the mainland. In general, stakeholder communities of Lighthouse Reef Atoll are the northern coastal communities and northern cayes, settled in the 1850s by Mestizo refugees from the Mexican Caste War.

4.4.4 Values

The 'natural, ecosystem, cultural outcomes' NECO table for HMCNM shows mostly threshold level for all site values (Criterion 3.7.2). This means that HMCNM has almost set thresholds for success, adequately measured trends and assess status, and will be able to systematically determine conservation outcomes (Criteria 4.1, 4.2, 4.3).

Table 10. NECO, Half Moon Caye Natural Monument

	Major values	Thresholds	Conditions	Trends
Natural values	Sharks	N/A	N/A	N/A
	White Phase Red-footed Booby Birds	1200 birds	1200 birds or below is poor	The population is generally stable with minor variations that vary on an annual basis
Ecosystem Services	Carbon Sinks	not set	N/A	A national report is generated by the GOB that includes this information
	Job availability (Tourism)	80-90% direct employment	90-100 direct employment	N/A
Cultural Values	Traditional fishing	Belize Fisheries Department License for Lighthouse Reef 2020: 720	N/A	N/A

Recommended improvements to the monitoring and determination of success for key values, as detailed in the NECO table, that would help comply with the IUCN Green List Standard include:

- Systematically detail the conditions and trends of each key species within HMCNM to refine conservation thresholds
- Evaluate and document the performance metrics of ecosystem services along with their current states and trends
- Expand the identification of cultural values, assessing their states and tracking changes over time
- Continuously update and adjust reporting on trends and thresholds to reflect evolving environmental and social contexts

4.4.5 Summary of IUCN Green List self-assessment IBEX

IBEX scores by component

Overall Score	Good governance	Sound design and planning	Effective management	Conservation outcomes	
68%	**97%**	**89%**	**78%**	**8%**	**Near alignment**

IBEX scores by criterion

Good governance			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
1.1 Guarantee legitimacy and voice	91%	There are clearly defined, legitimate equitable and functional governance arrangements, in which the interests of civil society, all substantive and legitimate rights-holders and stakeholders are fairly represented and addressed. Governance mechanisms promote gender equity and diversity. There is mutual respect for the governance arrangements in place and for the management authority among key actors. Processes are in place to redress any identified legacy issues relating to site establishment, designation(s) or past management decisions.	The majority of the local community are aware and supportive of the site decision making however, they are a small number of fisherfolk that disagree and are always none compliant to regulations. Establish a new approach of inclusive decisions to find solutions that can be agreed and beneficial by all parties.
1.2 Achieve transparency and accountability	100%	Governance structures are clear and well-communicated. Management provisions are documented and available and regularly revised. Membership of key decision-making bodies is public and there are accessible means to communicate on issues	There is a grievance mechanism document that stakeholders can report, however, it is not readily available. Make the grievance mechanism more accessible and visible to all stakeholders to enhance their ability to

		of concern. Decision-making processes are transparent, and their results well-documented and published. There is an active process for addressing disputes and grievances related to governance and management., with response mechanisms in place.	participate in governance actively and responsibly.
1.3 Enable governance vitality and capacity to respond adaptatively	100%	Planning and management draw on the best available knowledge of the social and ecological context of the site, using an adaptive management framework that anticipates, learns from and responds to change in its decision-making. Planning and management processes draw on multiple knowledge sources (scientific, experiential, local and traditional knowledge) as well as appropriate technology. The site has, where relevant, considered historical changes and future projections in social, ecological and climate conditions. Adaptations to projected climate change impacts are factored into governance and management structures.	Systematically document governance activities, especially those involving adaptive management, to ensure that all changes and decisions are transparent and well-communicated to stakeholders
Sound design and planning			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
2.1 Identify and understand major site values	100%	There is a clear and defined area-based conservation measure in place for which the major values for conservation of nature with associated ecosystem services, and cultural values are identified and understood. The site has a current and functioning management plan (or equivalent)	Maintain excellent documentation and understanding of major site values into the future.

		that is regularly revised and updated.	
2.2 Design for long-term conservation of major site values	80%	The site's designation, scale, connectivity, and characteristics are well-aligned with conservation goals and objectives. Major site values are fully identified and understood, design and planning can help address their long-term conservation needs. The design of the site in its landscape/seascape context supports long-term maintenance of the major site values.	Review and implement MP with all stakeholders.
2.3. Understand threats and challenges to major site values	81%	There is a good understanding of all current threats and challenges to major site values, including climate change impacts. All threats and challenges are described in sufficient detail to enable informed planning and management to adapt to or mitigate them.	Conduct systematic threat assessments during every MP review cycle to update list of threats and corresponding actions.
2.4 Understand social and economic context	90%	There is a good understanding of the social and economic context, and this is reflected in most management goals and objectives.	Conduct assessment to better understand site impact on social balances of the region.
Effective management			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
3.1 Develop and implement a long-term management strategy	75%	There is an operational management strategy with goals and objectives for the conservation of most major site values, and address most of the ecological, social and economic context of the site. Management approaches contribute to some extent to fair and functioning working conditions. Implementation is mainly supported by adequate resourcing	Increase the number of staff (particularly women) to implement activities safely and efficiently. Secure a stable, diversified financial base and develop a comprehensive financial sustainability strategy.

		and material and tracked through a work planning system. However, a lack of financial resources may be preventing core management operations.	
3.2 Manage ecological condition	100%	The site can clearly demonstrate that ecological attributes and processes are being managed actively to maintain the major site values.	Maintain the effective ecological attribution and process.
3.3 Manage within social and economic context of the area	100%	There is clear capacity and mandate in place for engaging rights-holders and stakeholders. They are well incorporated into management planning and operations, ensuring that management is aligned with the social and economic context of the site.	Maintain the strategies and efforts to enhance the social and economic context of the site.
3.4 Manage threats	50%	Some threats are identified and being responded to, so that their impact is lessened on some major site values identified, or on the achievement of the site's goals and objectives.	Design and implement a work program with activities that effectively respond to the main threats to natural and cultural values.
3.5 Effectively and fairly enforce laws and regulations	90%	Laws, regulations and restrictions are fairly and effectively applied to all aspects of site management. There is adequate organization of compliance operations and coordination on enforcement. Information on regulations and their implications is fully available to local stakeholders and the public.	The site needs to increase the number of rangers to conduct effective surveillance throughout the site. Rangers need to be sufficiently equipped and trained to conduct safe and effective surveillance.
3.6 Manage access, resources use and visitation	92%	When permitted, activities within the area that involve direct access to resources are compatible with and support the achievement of the area's conservation goals and objectives, meet the needs of users, and are properly described	Improve the site´s services and facilities in order to meet the needs of different audiences and age groups, including disadvantaged people.

		and regulated. When permitted, tourism and visitor management are compatible with and support the achievement of the area's conservation goals and objectives.	
3.7 Measure success	40%	All major site values are assessed through a partial set of monitoring, evaluation and learning programmes, that begins to objectively determine successful conservation.	Set monitoring, evaluation and learning programmes to define the success
Successful conservation outcomes			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
4.1 Demonstrate conservation of major natural values	0%	There are no discernible conservation outcomes for any major natural values.	Document the achievement of each natural values and thresholds that are set
4.2 Demonstrate conservation of major associated ecosystem services	25%	The site can show limited success from conservation efforts for some major ecosystem services.	Record the performance measurement of each ecosystem services
4.3 Demonstrate conservation of cultural values	0%	There are no discernible conservation outcomes for any major cultural values.	Document the achievement of each cultural values and thresholds that are set

4.4.6 Summary and recommendations

Summary of the key achievements and identification of areas where the protected area **does not** meet Green List standard.

Governance

The latest HMCNM Management Plan emphasizes participation from key stakeholder, including those from the fishing and tourism sectors. The involvement of these stakeholders helps ensure that management strategies align with both conservation goals and local economic interests, fostering a sense of ownership and responsibility towards the monument's preservation. HMCNM has established a grievance mechanism allowing stakeholders to report issues. This setup supports transparency and accountability, crucial for trust and compliance among stakeholders.

Another key achievement is an adaptive management practices in place, though there's an acknowledgment that these need more systematic documentation to enhance responsiveness to changing conditions.

However, the IUCN Green List self-assessment IBEX indicated that there remains a minority of stakeholders, particularly among fisherfolk, who disagree with regulations and then become non-compliant, indicating a need for further engagement. While adaptive management practices are implemented, there's a need for better documentation and communication to ensure all stakeholders understand and can engage with these processes effectively. While it was self-assessed as fully compliant with Criterion 1.1, there is an interest to improve the “Legitimacy and Voice” to fully comply with the IUCN Green List Standard.

The grievance mechanism, though in place, is not readily accessible to all stakeholders. This limits the opportunity for stakeholders to raise concerns and contribute to decision-making processes effectively.

Design and Planning

HMCNM’s 5-year Management Plan (MP) (2017-2021), which also covers Blue Hole Natural Monument, was designed with input from key stakeholders from all concerned sectors (including fishing and tourism).

The site has clearly defined objectives that are considered adequate for planning and management, focusing on protecting biodiversity, maintaining commercial fish stocks, and building stakeholder support and benefits.

While threats have been assessed in the past, systematic checks need to be conducted during every MP review cycle to update list of threats and identify appropriate actions. While the identification of threats is nearly aligned to the IUCN Green List, threats to the site’s major associated cultural values could benefit from further analysis.

Additionally, while the economic and social impact criterion IBEX score is 90%, which falls under full Green List alignment, the site’s impact on social balances of the region could benefit from further analysis.

The site demonstrates that it incorporates research and monitoring data into management decisions to address conservation needs. Overall, HMCNM’s design supports the achievement of conservation goals.

Effective Management

HMCNM´s management plan needs to be updated. This process should describe the objectives, strategies and activities needed for management of the site's natural, cultural and socioeconomic values. Besides that, the site needs to increase the number of staff in order to enforce regulations and implement other activities as described in the management plan.

There is clear capacity and mandate in place for engaging rights-holders and stakeholders. They are well incorporated into management planning and operations, ensuring that management is aligned with the social and economic context of the site. This is a great achievement considering the importance that HMCNM ecosystem services provision have, especially for local communities who work on tourism services and/or fishing. Another key achievement is that the site can clearly demonstrate that ecological attributes and processes are being managed actively to maintain the major site values.

Some threats are identified and being responded to, so that their impact is lessened on some major site values identified, so it is required to design and implement a work program with activities that effectively respond to the main threats to natural and cultural values as well as the site's goals and objectives.

Even though, laws, regulations and restrictions are applied to most aspects of site management, the site needs to increase the number of rangers to conduct effective surveillance throughout the site. Rangers need to be sufficiently equipped and trained to conduct safe and effective surveillance and Specific Standard Operational Procedures for HMCNM would be useful.

It is important to highlight that the types and levels of permitted activities are clearly defined and are compatible with the conservation of major site values, also that efforts have been made to accommodate needs for local stakeholders.

Conservation outcomes

HMCNM has initiated some measures to manage and monitor the ecological conditions, which include tracking endangered species like the Hawksbill turtle and Nassau grouper (source: latest Management Plan). These actions represent foundational steps towards systematic monitoring of outcomes.

However, according to IBEX, currently, there is no evidence or systematic documentation that demonstrates the conservation of major natural values. This indicates a critical gap in verifying that conservation efforts are effective in preserving the key ecological features and species for which the area was designated. Similar to natural values, there is a lack of documented success in conserving cultural values associated with the site. The absence of such evidence suggests that cultural aspects of conservation, such as the historical or traditional significance of the area, are not adequately addressed or monitored.

4.4.7 Key recommendations for the IUCN Green List process

Based on suggestions made by the managers for how these could be addressed. Discussion on additional resources or changes needed to meet Green List standard.

Based on suggestions made by the managers and a thorough review of the self-assessment exercise (Green List IBEX) and the current management plan, this section highlights the

needs of the HMCNM and the areas requiring improvement to meet the comprehensive standards set by the IUCN Green List. Some key areas are:

Ensure good governance

Some recommendations to meet the Green List Standard, will be to intensify efforts to engage the non-compliant minority by addressing their specific concerns and integrating their input into management decisions. This should involve targeted consultations and inclusive dialogue sessions to understand their grievances better. Potential action plan to improve Good Governance is to:

- Conduct regular reviews of governance practices to ensure they remain effective and relevant to the needs of the site and its stakeholders.
- Ensure the accessibility and functionality of the grievance mechanisms to ensure they are effective.
- Systematically document governance activities, especially those involving adaptive management, to ensure that all changes and decisions are transparent and well-communicated to stakeholders.
- Conduct regular reviews of governance practices to ensure they remain effective and relevant to the needs of HMCNM and its stakeholders.
- Revisit the accessibility and functionality of the grievance mechanisms as part of these reviews.

Sound design and planning, effective management

To properly identify and understand the major site values, HMCNM commits to ongoing biodiversity assessments, ensuring an up-to-date understanding of key conservation targets. The incorporation of local and indigenous insights (if applicable) is also vital, supporting continuous mapping and documentation of both cultural and natural resources. Other areas of recommendations are to:

- Identify threats to the site's major associated cultural values so that appropriate actions can be taken. Develop a comprehensive threat monitoring system to facilitate early detection of illegal activities and environmental changes.
- Conduct an assessment of the site's impact on social balances of the region to ensure a full understanding of the social context.
- Periodically re-evaluate zone allocations within HMCNM based on the latest ecological data for long-term conservation.
- Establish connectivity corridors between different habitats to bolster ecological integrity and resilience.
- Regularly update the management plan to address new and climate change-exacerbated threats.
- Conduct regular socio-economic studies to assess the impact of conservation activities on local communities and develop programs that meld sustainable livelihood opportunities with conservation efforts.
- Ensure the long-term management strategy aligns with both conservation goals and community needs.
- Secure a diverse array of sustainable funding sources to support ongoing conservation and management activities.
- Intensify threat management through rigorous enforcement of regulations, increased patrols, and surveillance.
- Implement stringent penalties for non-compliance and fortify legal frameworks for robust protection of the MPA.
- Train law enforcement officers on the latest conservation laws and their application.

- Regulate visitor access and resource use through clear guidelines and best practices to minimize ecological impacts and implement a visitor management system to effectively manage the flow of tourists to sensitive areas.
- Establish clear, measurable indicators of management effectiveness.

Demonstrate conservation outcomes

Some key areas of recommendations will be to develop clear benchmarks and indicators for both natural and cultural conservation values. Regularly document progress against these benchmarks to provide tangible evidence of conservation success.

Key areas recommended to proceed with the Green List:

- Regularly review and revise the indicators of management effectiveness, based on monitoring data and stakeholder feedback to ensure management strategies remain effective and responsive to both environmental and community needs
- Strengthen the existing monitoring programs to include comprehensive assessments of both biodiversity health and cultural heritage preservation. This would ensure a well-rounded approach to conservation that supports both ecological and cultural integrity.
- Establish a regular evaluation system to assess the effectiveness of conservation strategies and interventions will help adjust management practices as needed and provide a transparent account of progress towards the HMCNM's conservation goals.

4.4.8 Additional resources (links)

- Management documents: Half Moon Caye Natural Monument And Blue Hole Natural Monument 2017-2021
- NPAS-MEE 2023

4.5 Glover's Reef Marine Reserve

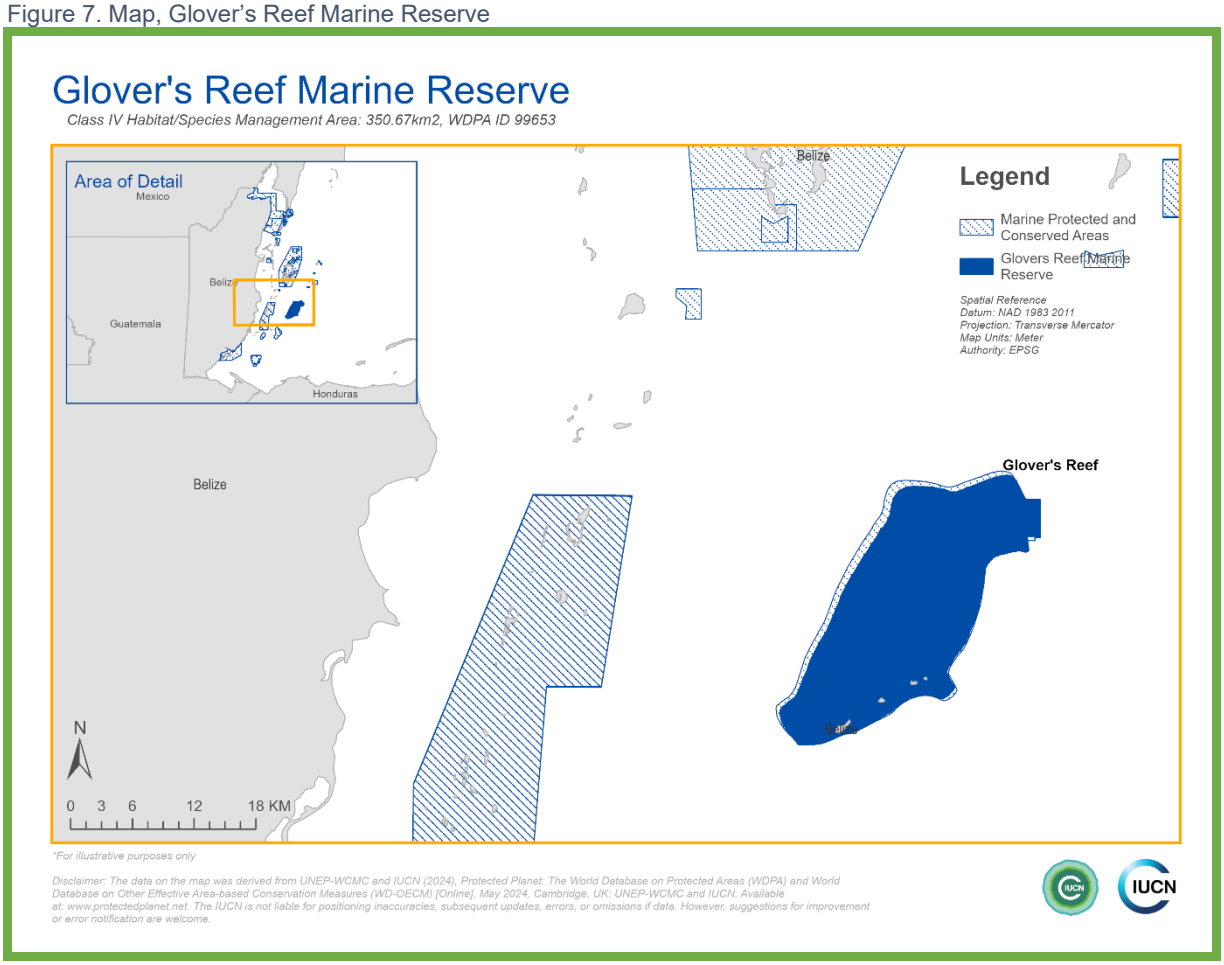
4.5.1 Key facts

Table 11. Site description, Glover's Reef Marine Reserve

WDPA ID	**99653**
Reported area (km^2)	**350.67**
IUCN management category	**IV Habitat/Species Management Area**
Status:	**Designated**
Type of designation	**National**
Status year	**1993**
Governance type	**Shared Governance**
Management authority	**Fisheries Department**
Co-Management	**Wildlife Conservation Society (WCS) on behalf of Fisheries Department**
Management plan (dates)	**2019 – 2023**
Management Effectiveness Evaluations	**MEE (2023)** **Advanced METT 2019**

4.5.2 Site Summary

Figure 7. Map, Glover's Reef Marine Reserve



4.5.3 Brief overview

Description of the key ecosystems and species that the area aims to protect. Any cultural, historical, or indigenous values associated with the area

Glover's Reef Marine Reserve (GRMR) is one of seven protected areas that together form the Belize Barrier Reef Reserve System, a UNESCO World Heritage Site. Covering approximately 350.67 square km, GRMR encompasses the southernmost of Belize's three offshore atolls, considered not only the best developed biologically, but also to possess the greatest diversity of reef types.

Geography and location: GRMR is located approximately 45 kilometres east of the Belize mainland (75 kilometres southeast of Belize City) with UTM coordinates: 415257 East; 1859210 North. The Atoll's deep lagoon system is dotted with about 850 patch reefs and pinnacles that rise to the surface. Five sand Cayes lie on the reef crest along the southeastern edge. These include South West Cayes I and II, Middle Caye, Long Caye and Northeast Caye.

Ecological richness: As part of the Mesoamerican Barrier Reef System, the World's second largest barrier reef, GRMR combine assemblage of ecosystems of remarkable biodiversity and beauty, as well as of great scientific value, and importance for many species of conservation concern, among them the critically endangered hawksbill turtle (*Eretmochelys imbricata*) and goliath grouper (*Epinephelus itajara*), and the endangered green and loggerhead turtles (*Chelonia mydas* and *Caretta caretta*). Glover's's Reef is rated as an ecoregional 'Highest Priority" and is considered a critical component of high regional importance in the maintenance and conservation of the reef system. Specially, the Atoll is renowned for its remarkable biodiversity, boasting the widest array of reef types in the Caribbean Sea.

Biodiversity highlights: Glover's Reef is critical nursery and feeding ground for sea turtles, sharks and rays, and numerous fish species that gather in massive numbers. Glover's' supports one of the Caribbean's largest and last remaining Nassau grouper spawning aggregations, a spectacular biological phenomenon that is becoming increasingly rare. It is one of the only true atolls—strings of coral islands and reefs surrounding a pristine lagoon—in the Atlantic Ocean. The western wall of Glover's Reef showcases an exceptionally diverse benthic community, with 95% living cover and up to 11 species per square meter, making it one of the most densely covered sites in the Caribbean. Additionally, the Atoll safeguards at least ten species of international concern, categorized as Critically Endangered, Endangered, or Vulnerable by the IUCN (2006), potentially even more.

Conservation and management: Glover's Reef Marine Reserve was established as a protected area in 1993 (SI 38 of 1993) under the Fisheries Act (Ch. 210), and encompasses the marine area of the Atoll, managed under the Fisheries Department of the Ministry of Agriculture and Fisheries. The Department is also responsible for enforcement of the no-take regulations of the marine reserve. Three primary stakeholder uses have been identified for the area – fishing, tourism and research. The Wildlife Conservation Society provides assistance to the Fisheries Department through collaborative research and monitoring activities.

Access, use and visitation: GRMR is a centerpiece of ecotourism within the greater Belize Barrier Reef. Activities concentrate on scuba-diving, kayaking and wind surfing. Fishing, including sport and fly fishing, is another important economic activity in the GRMR. It directly employs more than 3,000 people in an artisanal industry focused on lobster, conch and finfish. The two invertebrate species of commercial importance to the Glover's Reef fishery are the Caribbean spiny lobster (*Panulirus argus*) and the queen conch (*Strombus gigas*).

Cultural, spiritual and heritage values: Historically, Glover's Reef was once an important trading post for the indigenous Mayas of Mesoamerica. A pre-classic Mayan settlement has been identified on Long Caye. In more recent times, the atoll served as a refuge for British buccaneers.

Threats and challenges: Like coral reef systems worldwide, the GRMR is under threat from overfishing, pollution, unregulated tourism and climate change - threats that are destroying corals, depleting fish stocks and weakening ecological links across the seascape.

4.5.4 Values

The 'natural, ecosystem, cultural outcomes' NECO table for GRMR shows only threshold level for natural values (Criterion 3.7.2). This means that GRMR has not yet set thresholds for success, nor has it measured trends and assessed status; thus, it cannot systematically determine conservation outcomes (Criteria 4.1, 4.2, 4.3).

Table 12. NECO, Glover's Reef Marine Reserve

	Major values	Thresholds	Conditions	Trends
Natural values	Corals	Live coral cover - HRI Index	N/A	N/A
	Lobster	Abundance, carapace length	N/A	N/A
	Fin fish	CPUE / Landings survey	N/A	N/A
	Conch	Abundance, Length, Lip Thickness	N/A	N/A
Ecosystem Services	Shoreline protection	N/A	N/A	N/A
	Carbon sequestration	N/A	N/A	N/A
Cultural Values	Traditional Fishing Grounds	N/A	N/A	N/A

Recommended improvements to the NECO table that would help the site comply with the IUCN Green List Standard include:

- Implement detailed assessments of conditions and trends for all key species to appropriately modify thresholds when necessary
- Set performance benchmarks for all ecosystem services, monitoring their ongoing conditions and trends
- Identify additional cultural values, set the thresholds and systematically track their conditions and trends
- Strengthen monitoring practices to ensure focused and efficient prioritization of status and condition queries of these values
- Regularly revise and refresh trend reports and thresholds in response to evolving environmental and cultural dynamics

4.5.5 Summary of IUCN Green List self-assessment IBEX

IBEX scores by component

Overall Score	Good governance	Sound design and planning	Effective management	Conservation outcomes	
44%	**54%**	**63%**	**53%**	**8%**	**Partial alignment**

IBEX scores by criterion

Good governance			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
1.1 Guarantee legitimacy and voice	50%	Governance arrangements are in place and generally defined, and may be broadly understood. Certain stakeholders and rights-holders are identified and involved, but more inclusion and engagement may be required in governance processes, especially with regards to decision-making and ensuring mutual respect between key actors. Legacy issues relating to site establishment, designation(s) or past management decisions are identified.	Enhance involvement of local communities, stakeholders and rightsholders in the decision-making process. This includes more inclusive practices that ensure all voices are heard, particularly marginalized groups such as women and indigenous peoples.
1.2 Achieve transparency and accountability	40%	There is some information available on governance structures and management provisions. Some documents and details are accessible relating to management provisions and membership of decision-making bodies. Processes for raising issues of concern and pursuing grievances may exist but are not	There is a need for more transparent and accountable governance structures. This includes clear documentation of decision-making processes, active public engagement, and accessible grievance mechanism.

		generally known or accessible to stakeholders and rightsholders.	
1.3 Enable governance vitality and capacity to respond adaptatively	70%	Planning and management shows adaptive capacity, and draws on knowledge of the social and ecological context of the site, and a reasonable monitoring and evaluation framework. There is consultation and stakeholder participation in planning and management. There is vertical alignment between national and regional goals and processes and site governance and management. However, more responsiveness to historical and legacy issues, and future projections of change may be required, especially for the impacts of climate change	Implement a comprehensive monitoring and evaluation framework that includes specific, measurable indicators for biodiversity, ecosystem services, and cultural values. Regular updates and assessments will help track progress and make adaptive management decisions.
Sound design and planning			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
2.1 Identify and understand major site values	80%	There is a clear and defined area-based conservation measure in place, including a current or recent management plan, or equivalent. Major site-values are mostly identified and understood, with only a few elements yet to be determined, understood, recognized or considered.	Conduct assessment to comprehensively identify the major natural values and associated ecosystem services and cultural values.
2.2 Design for long-term conservation of major site values	70%	The site's designation, scale, connectivity and characteristics are well-aligned with conservation goals and objectives. Major site values are fully identified and understood, yet design and planning may require additional considerations and improvements in order to address long-term conservation needs. There is	Review MP based on findings of site values assessment.

		some contextual understanding of the wider landscape/seascape.	
2.3. Understand threats and challenges to major site values	49%	There is a partial understanding of threats to major site values, including climate change impacts. Either some major site values are not fully identified, and therefore understanding of threats is partial in scope; and/or understanding of threats is only partial for the identified major site values.	Conduct assessment to identify threats, including climate change, and define appropriate corresponding actions.
2.4 Understand social and economic context	60%	There is an understanding of the social and economic context presented, and this is reflected in some management goals and objectives, but lacks stakeholder mapping.	Structure MP activities in a plan for improved stakeholder socio-economic benefits.
Effective management			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
3.1 Develop and implement a long-term management strategy	31%	There is only a limited form of management strategy, which lacks clear and relevant goals and objectives.	Technical and operational capacity needs to be strengthened to implement activities as described in the management plan. Infrastructure needs to be built to conduct activities safely and efficiently. Increase the number of staff to implement activities safely and efficiently. Secure a stable, diversified financial base and develop a comprehensive financial sustainability strategy.
3.2 Manage ecological condition	33%	There is some intent and planning to manage ecological processes and attributes but limited technical or operational capacity.	Identify site´s ecological features and processes that require protection to maintain or enhance the site's major values. Identify and implement strategies and activities needed to protect ecological features and processes.

3.3 Manage within social and economic context of the area	50%	There is some capacity and mandate in place for engaging rights-holders and stakeholders, and for incorporating their voices into management planning and operations, but not yet within the full social and economic context of the site.	The economic and social context of the site needs to be considered to support goals and objectives included in the management plan. It is also strategic to consider opportunities to enhance economic and social benefits the site provides to local communities.
3.4 Manage threats	33%	There is some intent, but limited capacity, to respond to threats, if identified, to recognized major site values.	Design and implement a work program with activities that effectively respond to the main threats to natural and cultural values as well as the site's goals and objectives.
3.5 Effectively and fairly enforce laws and regulations	54%	Laws, regulations and restrictions are applied to several aspects of site management. There is some organization of compliance operations, and occasional coordination on enforcement. Information on regulations and their implications is partially available to local stakeholders and the public.	The site needs to increase the number of rangers to conduct effective surveillance throughout the site. Rangers need to be sufficiently equipped and trained to conduct safe and effective surveillance. GRMR SOP needs to clearly outline the Rangers operational mandates, rules of engagement, compliance mechanisms, code of conduct and (if any) enforcement powers.
3.6 Manage access, resources use and visitation	68%	When permitted, activities within the area that involve direct access to resources are mostly compatible with and support the achievement of the area's conservation goals and objectives, meet the needs of users, and are properly regulated. When permitted, tourism regulation and visitor management is sufficient,	Improve description of types and levels of permitted activities and its accessibility to the public. Work on permits, access control, enforcement and education strategies to minimise harm to major site values coming from use and access to natural resources.

		and contributes, in part, to the achievement of the area's conservation goals and objectives.	Improve the site´s services and facilities in order to meet safety and environmental standards as well as needs of different audiences and age groups, including disadvantaged people.
3.7 Measure success	100%	All major site values are assessed through a robust set of monitoring, evaluation and learning programmes. Objectively determined thresholds are set for performance measures for each of these major site values to help determine successful conservation outcomes.	Maintain the efforts to measure success that are pre-determined.
Successful conservation outcomes			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
4.1 Demonstrate conservation of major natural values	0%	There are no discernible conservation outcomes for any major natural values.	Catalog the accomplishments of each natural value alongside their predefined thresholds
4.2 Demonstrate conservation of major associated ecosystem services	25%	The site can show limited success from conservation efforts for some major ecosystem services.	Increase the performance metrics for each ecosystem service provided by GRMR
4.3 Demonstrate conservation of cultural values	0%	There are no discernible conservation outcomes for any major cultural values	Record the realisation of cultural values, detailing how they meet or exceed established thresholds.

4.5.6 Summary and recommendations

Summary of the key achievements and identification of areas where the protected area does not meet Green List standard.

Governance

GRMR has established a clear and formal recognition by national or regional governance authorities, providing a strong foundation for its management and protection. However, the reserve lacks a recognized and documented system to guide its decision-making processes (scored of 54% for Component 1 Governance), which could undermine the consistency and transparency of its management efforts. While the management plan is publicly accessible, the outcomes of discussions and decisions by the formal decision-making body are not made publicly available, indicating a need for greater transparency and accountability. Additionally, the absence of an active grievance mechanism suggests that there are limited avenues for addressing concerns or disputes raised by stakeholders (Criterion 1.2).

The involvement of communities, civil society organizations (CSOs), and rights-holders in the decision-making process at Glover's Reef Marine Reserve is evident, although it is somewhat limited. While all relevant communities, indigenous people, and rights-holders have been identified and partially involved in management discussions, there is room for improvement in their level of participation. Indigenous people and local communities seemed able to exercise their legitimate rights of access, cultural practices, and resource use within the reserve. However, the site has not made specific efforts to include women in decision-making processes or within the site-level staff, highlighting a significant gap in promoting gender inclusivity and equality.

The management of GRMR takes into account the results of field monitoring, enforcement activities, and consultations with rights-holders, ensuring that some level of local knowledge and scientific evidence informs its planning and decision-making. Nonetheless, the site only partially considers the problems, priorities, goals, and ambitions of local communities, and does not adequately plan for future changes within these communities or the broader ecological and climate conditions. The reserve's planning activities are partially based on past and ongoing changes, but there is a lack of proactive measures to anticipate future impacts.

Design and Planning

The GRMR's Management Plan (MP) objectives are well defined, and the implementation of MP programmes conducted to achieve them is effective and factors contributions from key local stakeholders. Objectives aim to protect the physical and biological resources of Glover's Reef, enable economic opportunities for livelihoods, increase awareness and understanding of the natural resource of Glover's Reef through research and education, and provide resources for recreation and tourism.

However, NPAS MEE 2023 suggested further efforts to comprehensively identify major natural values and associated ecosystem services and cultural values, which is consistent with the IBEX score and findings.

Effective Management

It is important to highlight that the types and levels of permitted activities are clearly defined and are compatible with the conservation of major site values, because GRMR is a main spot for ecotourism within the greater Belize Barrier Reef, supports very important artisanal

fishing industries, among other ecosystem services provided by this site. Thus, efforts to accommodate needs for local stakeholders must continue.

Additionally, technical and operational capacity needs to be strengthened to implement activities as described in the management plan, including staff requirements to implement activities safely and efficiently. Design and implementation of a work program with activities that effectively respond to the main threats to natural and cultural values is also required.

Conservation outcomes

For GRMR, the latest assessments indicate that conservation outcomes are still in the early stages of development.

The current conservation outcomes for these natural values are not fully documented or quantified as per Green List Standard. GRMR has yet to set specific thresholds for success, which hampers the ability to gauge actual conservation progress effectively.

While the reserve provides essential services such as fisheries and storm protection, systematic evaluations to quantify these services are missing. Future assessments should aim to establish baselines and monitor changes to better understand the impacts of conservation actions on these services.

The area holds historical significance for the local communities, including its history as a trading post for the indigenous Maya. However, there are no clear outcomes demonstrating how conservation efforts have helped preserve these cultural values, suggesting a need for focused conservation strategies in this area.

4.5.7 Key recommendations for the IUCN Green List process

Based on suggestions made by the managers for how these could be addressed. Discussion on additional resources or changes needed to meet Green List standard.

This section draws on recommendations from managers, an in-depth analysis of the self-assessment exercise (Green List IBEX), and the existing management plan. It identifies the needs of Glover's Reef Marine Reserve (GRMR) and the areas that need enhancement to align with the rigorous criteria established by the IUCN Green List.

Highlighted key areas include:

Ensure good governance

Based on the assessment above, there is a need for more transparent and accountable governance structures. in promoting gender inclusivity and equality. It is also important to address the gaps by incorporating comprehensive scientific forecasts and engaging more deeply with local knowledge and future planning would enhance the resilience and effectiveness of the reserve's management strategies. It is recommended to:

- Establish and document a recognized system to guide decision-making processes to enhance consistency and transparency
- Ensure outcomes of discussions and decisions by the formal decision-making body are publicly available to improve transparency and accountability
- Implement an active grievance mechanism to provide avenues for stakeholders to address concerns or disputes
- Increase the involvement of communities, civil society organizations (CSOs), and rights-holders in the decision-making process

- Make specific efforts to include women in decision-making processes and within site-level staff to promote gender inclusivity and equality
- Enhance the consideration of local community problems, priorities, goals, and ambitions in planning and decision-making.
- Develop proactive measures to anticipate and plan for future ecological and climate changes, as well as socio-economic shifts within local communities.

Sound design and planning, effective management

In terms of Design and Planning, firstly, an assessment should be conducted to comprehensively identify the major natural values and associated ecosystem services and cultural values, based on which the design may need to be adjusted in order to address long-term conservation needs. Secondly, all threats, including climate change, need to be identified in order to define appropriate actions. Lastly, Management Plan activities should factor in the site's impact on local economy and social balances of the region. Other key recommended activities are:

- Consider opportunities to enhance economic and social benefits the site provides to local communities.
- The site needs to increase the number of rangers to conduct effective surveillance throughout the site.
- Rangers to be sufficiently equipped and trained to conduct safe and effective surveillance
- GRMR Standard Operational Procedures needs to clearly outline the Rangers operational mandates, rules of engagement, compliance mechanisms, code of conduct and enforcement powers.
- Threats, including climate change, should be reassessed in order to clearly identify risks and define appropriate actions, responding to Criterion 3.4.
- Additionally, the site's impact on local economy and social balances of the region requires further analysis to ensure full Green List alignment.

Demonstrate conservation outcomes

It is crucial for GRMR to establish clear and quantifiable conservation targets that are aligned with national strategies. These targets should be specific, measurable, and based on scientific research to effectively monitor the conservation status of key species and habitats within GRMR. Some key areas are:

- Implement a comprehensive monitoring and evaluation framework that includes specific, measurable indicators for biodiversity, ecosystem services, and cultural values
- Regularly update and assess to help track progress and make adaptive management decisions
- Improve the documentation and public reporting of conservation outcomes to increase transparency and accountability for GRMR. Detailed reports should also be made available to all stakeholders, providing updates on the progress towards achieving conservation targets and the effectiveness of management strategies.

4.5.8 Additional resources (links)

- Management documents: Management Plan of Glover's Reef Marine Reserve 2019 – 2023

- Suggested websites for more detailed information about the protected area: https://belize.wcs.org/en-us/Wildlife/Nassau-grouper.aspx, Belize Fisheries Department, UNESCO World Heritage Sites, WCS, BIOPAMA
- NPAS MEE 2023?

4.6 Gladden Spit and Silk Cayes Marine Reserve

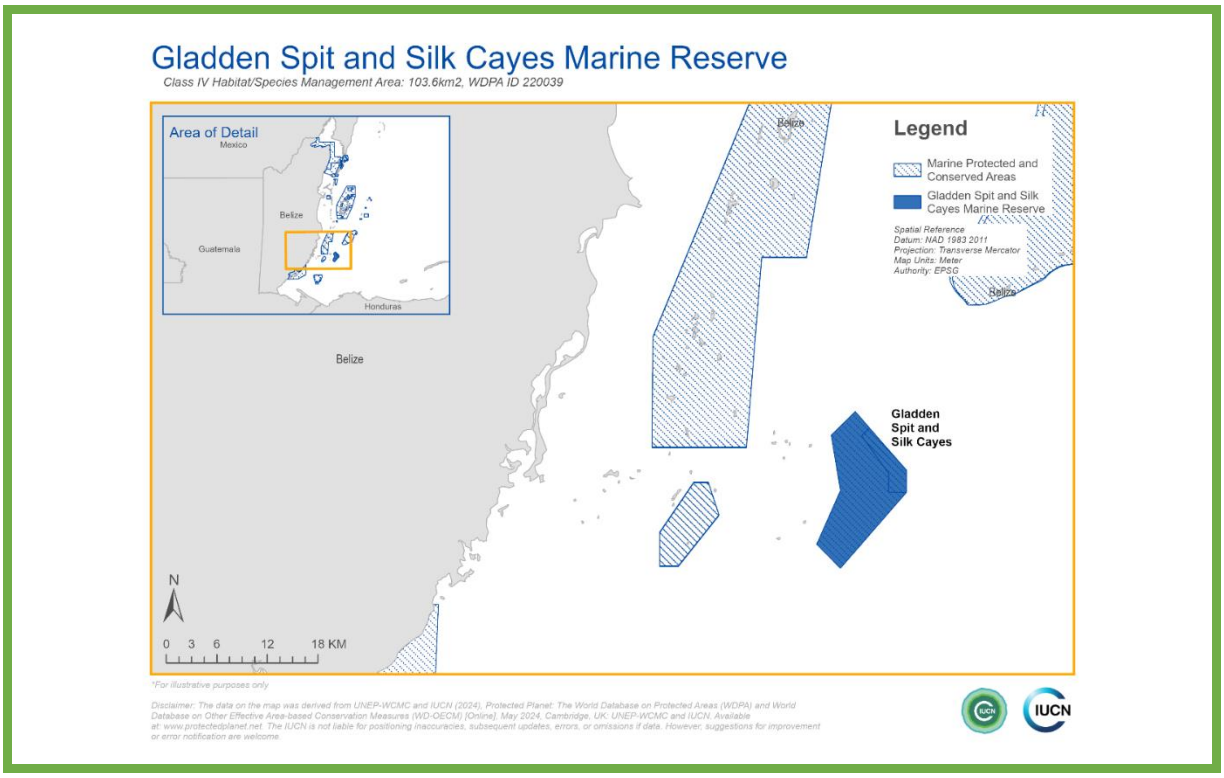
4.6.1 Key facts

Table 13. Site description, Gladden Spit and Silk Cayes Marine Reserve

WDPA ID	**220039**
Reported area (km^2)	**103.6**
IUCN management category	**IV Habitat/Species Management Area**
Status:	**Designated**
Type of designation	**National**
Status year	**2000**
Governance type	**Shared governance**
Management authority	**Fisheries Department**
Co-Management	**Southern Environmental Association**
Management plan (dates)	**2011 – 2016** **2018 – 2023**
Management Effectiveness Evaluations	**MEE (2023)** **METT 2013, 2010**

4.6.2 Site Summary

Figure 8. Map, Gladden Spit and Silk Cayes Marine Reserve



4.6.3 Brief overview

Description of the key ecosystems and species that the area aims to protect. Any cultural, historical, or indigenous values associated with the area.

Gladden Spit and Silk Cayes Marine Reserve (GSSCMR) is a protected area that forms part of the Belize Barrier Reef and lies within the regional Mesoamerican Barrier Reef System. The Marine Reserve contains assemblages of regionally important ecosystems of remarkable biodiversity and beauty, as well as of great scientific value, and importance for many species of global conservation concern.

Geography and location: GSSCMR covers a total area of 103.6 square km (10,523 ha), the marine reserve is located 36 km of the village of Placencia, a popular tourist destination and the main starting point for tours to the area.

Ecological richness: Gladden Spit has been identified as the highest priority spawning aggregation site in Belize and the largest in the ecoregion, supporting more than 30 species of fish, including grouper and snapper, each congregating in the thousands at full moon. This, in turn, attracts one of the largest predictable whale shark congregations in Belize and the Mesoamerican region. While the Silk Cayes are a collection of three cayes (North Silk, Middle Silk and South Silk) that provide an ideal location for snorkeling and shallow reef diving.

Biodiversity highlights: GSSCMR is known for its important regional spawning aggregation. It also boasts a rich and varied reef fauna, with commercial species such as conch, lobster and finfish thriving within its boundaries. The sandy beaches of the three Silk Cayes, together with the clear shallow waters, vibrant coral reefs and abundant seagrass beds, provide habitats for numerous marine species, including nesting sites for green and hawksbill turtles.

Conservation and management: GGSSCMR was originally established in May 2000 following lobbying from Friends of Nature (FoN), now the Southern Environmental Association (SEA), a local, community-based organisation. It was designated as a Marine Reserve in 2003, principally for the protection of the Gladden Spit spawning aggregation site, the congregating whale sharks, and the tourism value of the Silk Cayes. The Marine Reserve has clear zones embedded in the legislation that allow for extractive/non-extractive use, and conservation protection, with use concentrating on sustainable fishing, tourism, research and education.

Access, use and visitation: GSSCMR is an increasingly important tourism destination. It provides an excellent resource for marine-based activities - the proximity of pristine reefs, dive sites, whale sharks and world sport fishing draw many visitors to the area. Equally, the fishing sector that uses Gladden Spit and Silk Cayes Marine Reserve is part of the traditional industry that employs over 2,750 fishers. SEA continues to work closely with communities to promote education, alternative livelihoods, and community engagement in the management process. The education of both stakeholders and visitors is an important task for effective management of the Marine Reserve, though it has been limited in the past.

Cultural, spiritual and heritage values: The majority of the GSSCMR traditional fishermen originate from the mainland communities of Hopkins, Sittee River, Riversdale, Seine Bight, Placencia, Independence and Monkey River, and the northern coastal communities of Sarteneja, Copper Bank and Chunox.

Threats and challenges: The most recent management plan for the site has identified the following threats to biodiversity that affect the site's conservation objectives: Erosion of sandy beaches; Erosion of natural beach vegetation; Human impacts related to tourism/recreational use; Coral bleaching; Illegal fishing and incursions; Overfishing; Pollution (garbage); Boat impacts (anchor damage); Sedimentation on coral and seagrass communities; Invasive species (lionfish); and Pollution (wastewater and sewage).

4.6.4 Values

The 'natural, ecosystem, cultural outcomes' NECO table for Gladden Spit and Silk Cayes Marine Reserve shows only major natural values and ecosystem services (Criterion 3.7.2). This means that GSSCMR has not yet set thresholds for success for all values, nor has it measured trends and assessed status; thus, it cannot systematically determine conservation outcomes (Criteria 4.1, 4.2, 4.3).

Table 14. NECO, Gladden Spit and Silk Cayes Marine Reserve

	Major values	Thresholds	Conditions	Trends
Natural values	Turtles	N/A	N/A	N/A
	Commercial species	N/A	N/A	N/A
	Coral reef communities	N/A	N/A	N/A
	Whale shark	N/A	N/A	N/A
	Sea grass communities	N/A	N/A	N/A
Ecosystem Services	Ecotourism	Carrying capacity threshold: 40 and less visitors on the island.	Average of 36 visitors per day 2023.	Controlled tourists occupancy so the threshold is not exceed.
	Research and education	No threshold set	Outreach, Educational and awareness programs.	Educational programs (tourists, visitors, students and locals)
Cultural Values	Traditional fishermen (Special license)	N/A	N/A	N/A

Recommended improvements to the NECO table that would help this MPA better align with the IUCN Green List Standard include:

- Define thresholds, conditions and trends for natural and cultural values
- Precisely identify and monitor the conditions and trends of each identified key natural values (species) to adapt thresholds accurately
- Clearly define and evaluate the performance of ecosystem services, along with their current conditions and trends
- Extend the identification and monitoring of cultural values, assessing their conditions and observing trends
- Refine current monitoring practices to effectively address and prioritise the status and conditions of these values
- Consistently update and revise reports on trends, adjusting thresholds as needed based on evolving circumstances

4.6.5 Summary of IUCN Green List self-assessment IBEX

IBEX scores by component

Overall Score	Good governance	Sound design and planning	Effective management	Conservation outcomes	
72%	**82%**	**98%**	**76%**	**33%**	**Near alignment**

IBEX scores by criterion

Good governance			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
1.1 Guarantee legitimacy and voice	90%	There are clearly defined, legitimate equitable and functional governance arrangements, in which the interests of civil society, all substantive and legitimate rightsholders and stakeholders are fairly represented and addressed. Governance mechanisms promote gender equity and diversity. There is mutual respect for the governance arrangements in place and for the management authority among key actors. Processes are in place to redress any identified legacy issues relating to site establishment, designation(s) or past management decisions.	Enhance the involvement and representation of all stakeholders, including civil society and legitimate rightsholders.
1.2 Achieve transparency and accountability	60%	There is some information available on governance structures and management provisions. Some documents and details are accessible relating to management provisions and membership of decision-making bodies. Processes for raising	Enhance stakeholder engagement and transparency in governance processes. Implement processes to address any identified legacy issues related to site establishment, designation, or past

		issues of concern and pursuing grievances may exist but are not generally known or accessible to stakeholders and rightsholders.	management decisions. This includes revisiting past grievances and ensuring they are acknowledged and addressed in current governance practices.
1.3 Enable governance vitality and capacity to respond adaptatively	100%	Planning and management draws on the best available knowledge of the social and ecological context of the site, using an adaptive management framework that anticipates, learns from and responds to change in its decision-making. Planning and management processes draw on multiple knowledge sources (scientific, experiential, local and traditional knowledge) as well as appropriate technology. The site has, where relevant, considered historical changes and future projections in social, ecological and climate conditions. Adaptations to projected climate change impacts are factored into governance and management structures.	Maintain the vitality of governance and the current management process.
Sound design and planning			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
2.1 Identify and understand major site values	100%	There is a clear and defined area-based conservation measure in place for which the major values for conservation of nature with associated ecosystem services, and cultural values are identified and understood. The site has a current and functioning management plan (or equivalent) that is regularly revised and updated.	Regularly revise the management documents when necessary.
2.2 Design for long-term conservation of major site values	100%	The site's designation, scale, connectivity, and characteristics	Develop and implement annual operational / work plan in

		are well-aligned with conservation goals and objectives. Major site values are fully identified and understood, and design and planning can help address their long-term conservation needs. The design of the site in its landscape/seascape context supports long-term maintenance of the major site values.	agreement with MP strategies / activities.
2.3. Understand threats and challenges to major site values	93%	There is a good understanding of all current threats and challenges to major site values, including climate change impacts. All threats and challenges are described in sufficient detail to enable informed planning and management to adapt to or mitigate them.	Further assess threats to major natural values and ecosystem services Conduct systematic threat assessments during every MP review cycle to enhance the understanding of threats, including climate change.
2.4 Understand social and economic context	100%	There is a good understanding of the social and economic context, and this is reflected in most management goals and objectives.	Maintain the understanding of the socio-economic context relevant to GSSCMR
Effective management			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
3.1 Develop and implement a long-term management strategy	66%	There is an operational management strategy with goals and objectives for the conservation of most major site values, and address most of the ecological, social and economic context of the site. Management approaches contribute to some extent to fair and functioning working conditions. Implementation is mainly supported by adequate resourcing and material and tracked through a work planning system. However, a lack of financial resources may	Acquire equipment and build the infrastructure needed to conduct activities safely and efficiently. Increase the number of staff (particularly women) to implement activities safely and efficiently. Secure a stable, diversified financial base and develop a comprehensive financial sustainability strategy.

		be preventing core management operations.	
3.2 Manage ecological condition	75%	There is planning and capacity in place to manage and maintain ecological attributes and processes of major site values, but more comprehensive approaches may be required, and/or a more comprehensive suite of major site values should be considered.	Identify and implement strategies and activities needed to protect ecological features and processes.
3.3 Manage within social and economic context of the area	100%	There is clear capacity and mandate in place for engaging rightsholders and stakeholders. They are well incorporated into management planning and operations, ensuring that management is aligned with the social and economic context of the site.	Maintain or increase the capacity to manage the site adapted to the socio-economic context.
3.4 Manage threats	100%	Threats are being actively and effectively responded to, so that their impact is not compromising the maintenance of major site values or the achievement of the area's goals and objectives.	Maintain or improve the threat management.
3.5 Effectively and fairly enforce laws and regulations	52%	Laws, regulations and restrictions are applied to several aspects of site management. There is some organisation of compliance operations, and occasional coordination on enforcement. Information on regulations and their implications is partially available to local stakeholders and the public.	The site needs to increase the number of rangers to conduct effective surveillance throughout the site. Rangers need to be sufficiently equipped and trained to conduct safe and effective surveillance. SOP needs to clearly outline the Rangers' operational mandates, rules of engagement, compliance mechanisms, code of conduct and (if any) enforcement powers.

3.6 Manage access, resources use and visitation	88%	When permitted, activities within the area that involve direct access to resources are compatible with and support the achievement of the area's conservation goals and objectives, meet the needs of users, and are properly described and regulated. When permitted, tourism and visitor management are compatible with and support the achievement of the area's conservation goals and objectives.	Improve the site´s services and facilities to meet safety standards.
3.7 Measure success	50%	All major site values are assessed through a partial set of monitoring, evaluation and learning programmes, that begins to objectively determine successful conservation.	Improve the monitoring system in place and set performance measures and document it.
Successful conservation outcomes			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
4.1 Demonstrate conservation of major natural values	0%	The site can show limited success from conservation efforts for some major natural values.	Define the attainment of each natural value against set thresholds to monitor conservation progress.
4.2 Demonstrate conservation of major associated ecosystem services	50%	The site can show partial or improved success through conservation efforts for most major ecosystem services.	Track and evaluate the efficiency of each ecosystem service through structured performance assessments.
4.3 Demonstrate conservation of cultural values	100%	The site can show partial or improved success through conservation efforts for most major cultural values.	Capture the fulfilment of cultural values, noting adherence to or progress beyond designated thresholds.

4.6.6 Summary and recommendations

Summary of the key achievements and identification of areas where the protected area does not meet Green List standard.

Governance

The governance of GSSCMR is characterised by a shared governance type, with management provided by the Southern Environmental Association in partnership with the Belize Fisheries Department. This management structure is crucial for the site's success in meeting the IUCN Green List Standard, particularly under criteria concerning legitimacy, voice, transparency, and adaptive governance.

The governance arrangements are considered legitimate and equitable according to the IBEX score (90%), with broad representation and fair addressing of stakeholder and rightsholder interests, aligned with IUCN Green List Criteria 1.1. Adaptive management practices are well integrated, using a blend of scientific, experiential, local, and traditional knowledge to respond to changes, meeting Criterion 1.3.

Some challenges are met with the transparency and accessibility of governance structures that need improvement, as significant information remains less accessible to stakeholders, presenting a challenge to fully meeting Criterion 1.2.

Design and Planning

While NPAS MEE 2023 found that GSSCMR's 5 objectives were clear and adequate in scope, only 1 is being achieved as planned, 3 are being achieved to some extent (effectively managing GSSCMR natural resources with the participation of all stakeholders, commercial marine resources for sustainability and the benefit of traditional users, and the spawning aggregations for sustainability of commercial fish stocks and individual species), and the remaining objective is only being achieved to a limited extent (effectively manage recreational opportunities for environmental sustainability, visitor appreciation and socio-economic benefit to local stakeholders).

With 3 of 4 IBEX design and planning criteria scoring at 100%, GSSCMR's design is confirmed to adequately support the achievement of conservation goals.

While the threats criterion IBEX score is 93%, which falls under full Green List alignment, an additional assessment would help better understand threats to major natural values and ecosystem services.

Additionally, NPAS MEE 2023 found that an annual operational / work plan consistent with MP strategies/activities should be developed and implemented, and further effort should be channelled towards ensuring that the plan adequately addresses the maintenance of ecological integrity.

Effective Management

GSSCMR's latest management plan (2023) outlines the goals and objectives for managing both natural values and social and economic aspects. It details the management strategies and activities designed to achieve these goals over the long term. The plan also specifies the activities permitted or prohibited within the site, as well as any zoning or temporal/spatial restrictions on access and use. In addition, activities are being conducted and implemented

as described in the Management Plan. However, more staff are required, and financial constraints need to be addressed to increase monitoring and enforcement activities.

A clear capacity and mandate is in place for engaging rightsholders and stakeholders. They are well incorporated into management planning and operations, ensuring that management is aligned with the social and economic context of the site, according to Criterion 3.3, with 100% of the score. This is a great achievement, considering the importance of GSSCMR ecosystem services, especially for local communities.

Another key achievement for GSSCMR is that threats are being actively and effectively responded to so that their impact is not compromising the maintenance of major site values or the achievement of the area's goals and objectives.

Even though laws, regulations, and restrictions are applied to most aspects of site management, the site needs to increase the number of rangers to conduct effective surveillance. Rangers need to be sufficiently equipped and trained to conduct safe and effective surveillance and Specific Standard Operational Procedures for GSSCMR.

Finally, it is important to highlight that the types and levels of permitted activities are clearly defined and are compatible with the conservation of major site values and that efforts have been made to accommodate the needs of local stakeholders.

Conservation outcomes

The conservation outcomes for GSSCMR currently demonstrate limited success in meeting the rigorous standards set by the IUCN Green List. The IBEX scores indicate some challenges in fully achieving conservation outcomes for both natural values and associated ecosystem services. Despite a strong foundation in cultural values conservation, the reserve struggles with quantifying and demonstrating tangible benefits from conservation efforts on natural and ecosystem service values.

There is an evident gap in systematically quantifying the conservation impacts on key biodiversity and ecosystem service values, which is critical for aligning with IUCN Green List Criteria 4.1 and 4.2.

The existing monitoring and evaluation frameworks do not fully capture or reflect the conservation progress needed to meet established goals, particularly concerning natural and ecosystem values.

4.6.7 Key recommendations for the IUCN Green List process

Based on suggestions made by the managers for how these could be addressed. Discussion on additional resources or changes needed to meet Green List standard.

This section reflects insights from managerial suggestions, a detailed review of the self-assessment exercise (Green List IBEX), and the prevailing management plan. It outlines the requirements of GSSCMR and pinpoints areas needing improvements to comply with the stringent standards of the IUCN Green List. Notable areas are:

Ensure good governance

To enhance the effectiveness and inclusivity of the GSSCMR's management, several key actions are proposed to strengthen governance practices, stakeholder engagement, and communication dynamics:

- Establish a local Advisory Committee or similar mechanism for structured stakeholder participation
- Update and complete guidelines and policies for best governance practices to support GSSCMR's management activities and address evolving challenges
- Increase stakeholder involvement in management activities to improve Criterion 1.2
- Engage more women in decision-making processes and within site-level staff to promote gender inclusivity and equality
- Establish a local Advisory Committee or similar mechanism for structured stakeholder participation
- Implement existing education and community engagement strategies to better inform the community about the site's significance and threats
- Strengthen communication channels with key related organizations through joint forums or established mechanisms for better information exchange and collaborative decision-making (Criterion 1.3)
- Grant the local management team more autonomy over administrative and technical affairs while maintaining necessary consultations with the central NGO office or line ministry
- Ensure regular and participatory Board of Directors meetings to make management decisions well-informed and locally relevant

Sound design and planning, effective management

For the Design and Planning, there is little that can potentially be improved. An additional assessment would help better understand threats to major natural values and ecosystem services so that risks can be identified and appropriate actions can be outlined.

Other key areas are:

- Acquire necessary equipment and build infrastructure to conduct activities safely and efficiently
- Increase staffing levels, with a focus on including roles for women, to support core management operations
- Reprioritise financial resources to sustain core management operations
- Enhance the enforcement of laws and regulations through better-equipped rangers and more defined operational procedures

Demonstrate conservation outcomes

To enhance the demonstration of conservation outcomes at Gladden Spit and Silk Cayes Marine Reserve (GSSCMR) and align them with the IUCN Green List Criteria under Component 4, it is crucial to develop and implement a comprehensive tool that addresses both the quantifiable and qualitative aspects of conservation. The list of key recommendations are to:

- Define precise conservation targets for all key natural values and ecosystem services of GSSCMR (e.g. NECO)
- Include baseline data to track changes and impacts over time, ensuring targeted and measurable conservation efforts
- Expand ecological monitoring programs to gather detailed data on key marine species and habitats.

- Conduct comprehensive assessments to measure the impact of conservation activities on ecosystem services such as ecotourism, carbon sequestration, and water quality
- Implement systematic monitoring of cultural values and community benefits to ensure positive contributions to local communities and maintenance of cultural heritage
- Establish a routine evaluation and reporting system providing periodic updates on the status of targets

4.6.8 Additional resources (links)

- Management Plan 2011-2016, 2018-2023
- Suggested websites for more detailed information about the protected area
- Websites: Belize Fisheries Department, UNESCO World Heritage Sites, Belize adventure, Destination wildlife
- NPAS MEE 2023

4.7 Sapodilla Cayes Marine Reserve

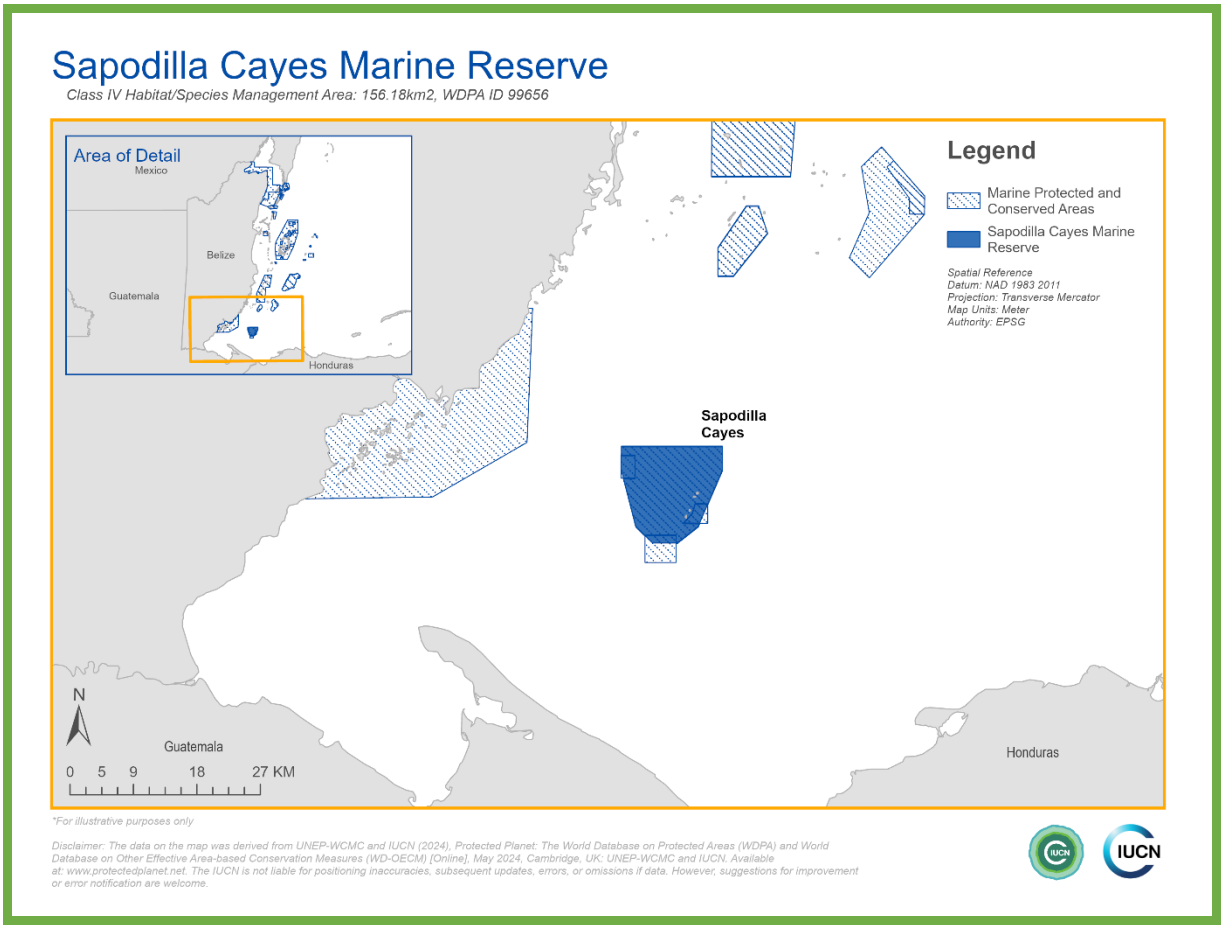
4.7.1 Key facts

Table 15. Site description, Sapodilla Cayes Marine Reserve

WDPA ID	**99656**
Reported area (km^2)	**156.18**
IUCN management category	**IV Habitat/Species Management Area**
Status:	**Designated**
Type of designation	**National**
Status year	**1996**
Governance type	**Shared governance**
Management authority	**Fisheries Department/Toledo Institute for Development and Environment**
Co-Management	
Management plan (dates)	**2011 – 2016**
Management Effectiveness Evaluations	**MEE (2023)** **METT 2013, 2010** **Advanced METT 2019**

4.7.2 Site Summary

Figure 9. Map, Sapodilla Cayes Marine Reserve



4.7.3 Brief overview

Description of the key ecosystems and species that the area aims to protect. Any cultural, historical, or indigenous values associated with the area

Sapodilla Cayes Marine Reserve (SCMR) is a national protected marine reserve declared over the Sapodilla Cayes. SCMR itself has been designated as one of seven components of the Belize Barrier Reef System - World Heritage Site, in recognition of the uniqueness of its contribution to Belize's reef system. SCMR is also part of the Meso-American Reef (MAR).

Geography and location: Located approximately 50 km east of Punta Gorda Town, Toledo District, SCMR encompasses the southernmost tip of the Belize Barrier Reef System at 16°11'40" to 16°05'00" N latitude. The eastern and western boundaries of the reserve follow the 100 metre depth contours along the reef. The reserve covers an area of approximately 156.18 square km (15,619 ha) and includes fourteen sand or mangrove cayes that are considered some of the most scenic in Belize. They are: Tom Owens Caye I and II, Northeast Sapodilla Caye, Frank's Cayes main, east and west, Nicholas Caye, Hunting Caye, Lime Caye, Ragged Caye, Seal Cayes I and II, and 2 unvegetated or ephemeral islands that are often overtopped by waves.

Ecological richness: Situated in an area known for its diverse reef structures and important cross-shelf habitat connectivity, the SCMR hosts an ecosystem assembly considered to be one of the most biodiverse in the region. SCMR is known for its high coral species diversity and for the upwelling along the reef drop-off, which provides ideal conditions for spawning aggregations.

Biodiversity highlights: The reserve provides nursery and feeding habitat for at least twenty-eight species of international concern, among them the critically endangered staghorn and elkhorn corals (*Acropora cervicornis* and *Acropora palmata*), hawksbill turtle (*Eretmochelys imbricata*) and goliath grouper (*Epinephelus itajara*). In fact, the area as a whole is the second most important hawksbill nesting site in Belize. The marine reserve also protects the endangered green and loggerhead turtles (*Chelonia mydas* and *Caretta caretta*). The SCMR also contributes towards the regional viability of important commercial species, including the Queen Conch (*Strombus gigas*) and spiny lobster (*Panulirus argus*), and integrates protection of three recognized spawning aggregation sites. The SCMR supports a wide variety of fish species and other marine life including whale sharks and dolphins. The littoral forest provides an important stopover for migratory birds as they fly south to their wintering grounds.

Conservation and management: SCMR was established in 1996 (SI 117 of 1996), under the Fisheries Act (1948), revised to include management zoning in 2009 (SI 50 of 2009). The protected area is currently managed by the Fisheries Department and the Southern Environmental Association, through a co-management letter of arrangement. SCMR is a multiple use area, supporting both commercial fishing and tourism activities. Various rules and regulations within statutory instruments govern all activities within the protected area, including tourism and commercial fishing practices. The marine reserve contains three nationally recognized and protected spawning aggregation sites at Nicholas Caye, Rise and Fall Bank and Seal's Caye, established under SI 161 of 2000, and considered vital for the maintenance of Belize's commercial finfish stocks.

Access, use and visitation: Considered to be of high ecological and tourist value, the SCMR attracts numerous Belizean tourism businesses and visitors from the region frequent the Cayes on holiday thanks to its stunning blue waters and vibrant coral. The area also has high potential education and research value, as the Hunting Caye provides a base for the reserve staff, and a research facility for the University of Belize and visiting students and

researchers. SCMR is also of economic importance to Belize as a lobster, conch and fin-fish resource for traditional fishermen from mainland fishing communities. Whilst there are no communities directly adjacent to the marine reserve, several are considered as stakeholders. Local fishermen from Monkey River, Punta Negra and Punta Gorda have been operating within the reserve area from temporary camps on the cayes for approximately 30 years and have long been considered to be the primary stakeholders within Belize, though use of the area has decreased significantly over the past four years.

Cultural, spiritual and heritage values: Obsidian shards and broken pottery show that Mayan fishermen used the cayes in Maya times, and shipwrecks of Spanish sailing vessels show that these boats also sailed these waters, though the evidence of this historical use has been eroded over time by the strong currents. In recent years the Sapodilla Cayes have been a point of contention, with both Guatemala and Honduras claiming sovereignty.

Threats and challenges: Assessments done on SCMR have raise concerns on the alteration of terrestrial ecosystems to maintain the aesthetically appealing sandy beaches, as a result of revenue generation mechanisms focused on tourism. The assessment also flagged the presence of invasive species such as Casuarina, coconuts and lionfish, and the limited management activities being implemented to address these. Impacts from increasing visitation and from agricultural runoff from the coastline to the south are thought to be reducing the viability of the coral and its ability to recover following bleaching.

4.7.4 Values

The ‘natural, ecosystem, cultural outcomes’ NECO table for Sapodilla Cayes Marine Reserve (SCMR) shows only major natural values and ecosystem services (Indicator 3.7.2). This means that SCMR has not set thresholds for success for all values yet; thus, it is almost fully aligned to be able to determine conservation outcomes (Criteria 4.1, 4.2, 4.3).

Table 16. NECO, Sapodilla Cayes Marine Reserve

	Major values	Thresholds	Conditions	Trends
Natural values	Sea Turtles	N/A (previous Yrs. <19)	Hawksbill = 19 (yr. 22)	Population Increasing
	Nassau Grouper	? (previous Yrs. >155)	Nassua = 155	Population Declining
	Lobster	Lobster = 567 (yr. 2022)	Lobster = 144 (yr. 2023)	Population Declining
Ecosystem Services	Tourism	Visitors=40836(yr.2015)	Visitors=20195 (yr.2023)	Population declined from 2015 however is increasing after the Pandemic (covid-19)
	Commercial Fishing	Fisherman=221 (yr. 2012)	Fisherman=974 (yr. 2019)	Fisherman increased in 2019 due to the pandemic. Tour guides became fishers
Cultural Values	WHS	N/A	N/A	N/A

Recommended improvements to the presentation of values and their conservation status through the NECO table that would help comply with the IUCN Green List Standard include:

- Define thresholds, conditions and trends for cultural values
- Further define clear performance indicators for ecosystem services, continuously monitoring their status and trends.
- Improve monitoring protocols to more effectively prioritise questions related to the status and condition of these value

- Systematically update reports on trends and modify thresholds as necessary to adapt to changing conditions

4.7.5 Summary of IUCN Green List self-assessment IBEX

IBEX scores by component

Overall Score	Good governance	Sound design and planning	Effective management	Conservation outcomes	
69%	**69%**	**75%**	**68%**	**67%**	**Near alignment**

IBEX scores by criterion

Good governance			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
1.1 Guarantee legitimacy and voice	66%	There are defined and functioning governance arrangements that do attempt to represent the interests of civil society, and all rights-holders and stakeholders are identified and engaged. However, more effort may be required in terms of, clarity, inclusiveness, mutual respect, gender-responsiveness, land rights. Any legacy issues relating to site establishment, designation(s) or past management decisions are identified and understood, with plans in place for redress where applicable.	More involvement from communities and more frequent stakeholders' meetings Few women interest in holding staff position at the site Some stakeholders are in minor disagreement with Government decisions. Establish more inclusive decision-making process and enhance further the stakeholders' engagement.
1.2 Achieve transparency and accountability	70%	Governance structures are communicated and management provisions are documented and available. Membership of key decision-making bodies is known. There are some means to communicate on issues of concern. Decision-making processes are generally transparent, and their results	The self-assessment indicated that the site management considers the Government to be the formal decision-making body The result is partially (70%) because not all outcomes are made publicly and available

		published. Processes for addressing disputes and grievances related to governance and management exist but could be more accessible regarding publishing and language with clear response mechanisms.	
1.3 Enable governance vitality and capacity to respond adaptatively	73%	Planning and management shows adaptive capacity, and draws on knowledge of the social and ecological context of the site, and a reasonable monitoring and evaluation framework. There is consultation and stakeholder participation in planning and management. There is vertical alignment between national and regional goals and processes and site governance and management. However, more responsiveness to historical and legacy issues, and future projections of change may be required, especially for the impacts of climate change.	According to IBEX, SCMR does not always consider the results of the consultations into the site management and planning
Sound design and planning			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
2.1 Identify and understand major site values	100%	There is a clear and defined area-based conservation measure in place for which the major values for conservation of nature with associated ecosystem services, and cultural values are identified and understood. The site has a current and functioning management plan (or equivalent) that is regularly revised and updated.	Maintain the understanding of the major site values
2.2 Design for long-term conservation of major site values	100%	The site's designation, scale, connectivity, and characteristics are well-aligned with conservation goals and objectives. Major site	Keep the good practices in understanding the long-term conservation goals and identify

		values are fully identified and understood, and design and planning can help address their long-term conservation needs. The design of the site in its landscape/seascape context supports long-term maintenance of the major site values.	new trends that will impact the site values.
2.3. Understand threats and challenges to major site values	50%	There is a partial understanding of threats to major site values, including climate change impacts. Either some major site values are not fully identified, and therefore understanding of threats is partial in scope; and/or understanding of threats is only partial for the identified major site values.	Conduct assessment to enhance the understanding of threats to the site's major natural and cultural values, including climate change.
2.4 Understand social and economic context	50%	There is some understanding presented on the social and economic context of the site and this is partially evident in management goals and objectives.	Conduct assessment to better understand site impact on local economy and social balances of the region.
Effective management			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
3.1 Develop and implement a long-term management strategy	57%	There is a form of management strategy with some goals and objectives for the conservation of at least a few of the major site values, that has partial relevance to the ecological, social and economic context of the site. However, management approaches are limited in their scope to promote fair and functioning working conditions. Implementation may lack adequate resourcing and material. A lack of finance may prevent effective management operations.	Technical and operational capacity needs to be strengthened to implement activities as described in the management plan. Infrastructure needs to be built to conduct activities safely and efficiently. Increase the number of staff to implement activities safely and efficiently. Secure a stable, diversified financial base and develop a comprehensive financial sustainability strategy.

3.2 Manage ecological condition	67%	There is planning and capacity in place to manage and maintain ecological attributes and processes of major site values, but more comprehensive approaches may be required, and/or a more comprehensive suite of major site values should be considered.	Identify and implement strategies and activities needed to protect ecological features and processes.
3.3 Manage within social and economic context of the area	100%	There is clear capacity and mandate in place for engaging rights-holders and stakeholders. They are well incorporated into management planning and operations, ensuring that management is aligned with the social and economic context of the site.	Maintain or increase the socio-economic capacity of the site
3.4 Manage threats	33%	There is some intent, but limited capacity, to respond to threats, if identified, to recognized major site values.	Design and implement a work program with activities that effectively respond to the main threats to natural and cultural values as well as the site's goals and objectives.
3.5 Effectively and fairly enforce laws and regulations	77%	Laws, regulations and restrictions are applied to most aspects of site management. There is adequate organization of compliance operations and some coordination on enforcement. Information on regulations and their implications is mostly available to local stakeholders and the public.	The site needs to increase the number of rangers to conduct effective surveillance throughout the site. Rangers need to be sufficiently equipped and trained to conduct safe and effective surveillance. SCMR SOP needs to clearly outline the Rangers operational mandates, rules of engagement, compliance mechanisms, code of conduct and (if any) enforcement powers.
3.6 Manage access, resources use and visitation	89%	When permitted, activities within the area that involve direct access to resources are compatible with and support the achievement of	Improve the site's services and facilities in order to meet safety and environmental standards as

		the area's conservation goals and objectives, meet the needs of users, and are properly described and regulated. When permitted, tourism and visitor management are compatible with and support the achievement of the area's conservation goals and objectives.	well as needs of different audiences and age groups, including disadvantaged people.
3.7 Measure success	50%	All major site values are assessed through a partial set of monitoring, evaluation and learning programmes, that begins to objectively determine successful conservation.	Some thresholds are in place while others need to be identified
Successful conservation outcomes			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
4.1 Demonstrate conservation of major natural values	0%	The site can demonstrate success through conservation efforts for the majority of major natural values.	Archive the successful attainment of benchmarks for each natural value within SCMR
4.2 Demonstrate conservation of major associated ecosystem services	100%	The area is meeting or exceeding the performance thresholds for successful conservation of all major natural values (and / or management is responding to especially challenging external circumstances that would otherwise severely affect one or more of these values).	Document the performance of each ecosystem service, highlighting effectiveness and areas for improvement
4.3 Demonstrate conservation of cultural values	100%	The area is meeting or exceeding the performance thresholds for successful conservation of all major cultural values.	Document each cultural value's achievement, referencing the thresholds set to gauge success

4.7.6 Summary and recommendations

Summary of the key achievements and identification of areas where the protected area does not meet Green List standard.

Governance

The SCMR has been formally recognized by national and regional governance authorities and possesses documented systems that guide its decision-making processes. This formal structure ensures a foundational level of organized management and transparency, with the site management plan being publicly accessible. However, the reserve's engagement with local communities, indigenous peoples, and other rights-holders is only partial according to the score of 66% for Criterion 1.1. While these groups are identified and involved in management discussions to some extent, their participation in decision-making and their ability to exercise legitimate rights remain limited. Efforts to include women within the decision-making process and site-level staff are present but not comprehensive, and a grievance mechanism for addressing conflicts or concerns is notably absent.

The planning and management of the SCMR integrate several layers of input and data. Field monitoring and enforcement activities inform decision-making, ensuring that management practices are based on empirical evidence. The site also considers scientific research and to some extent, incorporates the knowledge and experiences of local communities, indigenous peoples, and site staff. This multi-faceted approach helps the site address ongoing and anticipated changes in local community dynamics, as well as ecological and climate conditions. However, the integration of local and indigenous knowledge, as well as the forecasting of future community and ecological impacts, is only partial, indicating room for improvement in these areas for Criterion 1.2.

Although the site considers the priorities and goals of the relevant national government adequately, the concerns and ambitions of local communities are only somewhat reflected in the management plans. The decision-making body’s outcomes and discussions related to issues raised by civil society and stakeholders are partially available to the public, suggesting a need for greater transparency and communication. Awareness and support among local communities and CSOs for the site's decision-making processes are also not widespread, highlighting a gap in stakeholder engagement and support. Overall, while the SCMRhas a structured and partially inclusive management system, there are significant opportunities to enhance community involvement, transparency, and the incorporation of traditional and local knowledge in its planning and decision-making processes.

Design and Planning

SCMR’s major values for conservation of nature with associated ecosystem services and cultural values are accurately identified and well understood. The site has a functioning MP that is regularly revised and updated, and its designation, scale, connectivity and characteristics are well-aligned with conservation needs and goals.

However, according to NPAS MEE 2023, some of SCMR’s objectives need revision to be sufficient for planning and management. Out of the ones currently defined, 4 of 6 are being achieved effectively (develop sustainable fisheries, identify and protect resilient reefs, address uses and activities outside SCMR that threaten biodiversity within SCMR, ensure proper administration), while 2 of 6 are being achieved to some extent (ensure sustainable tourism use, ensure stakeholders are informed).

The NPAS MEE 2023 found that the PA design does not constrain the achievement of management objectives and conservation target goals but could be improved. IBEX scores of 50% indicate that assessments need to be conducted to better understand threats to the

site's major natural values, associated ecosystem services and cultural values (including climate change) and identify appropriate actions. Additionally, the site's impact on local economy and social balances of the region also requires further analysis.

Effective Management

The SCMR's management effectiveness is well-regarded, particularly in aligning with the socio-economic context of the area, which scored 100%. However, the reserve's capacity to manage ecological conditions and threats needs strengthening, as indicated by scores of 67% and 33%, respectively. The reserve struggles with resource limitations, affecting its ability to implement long-term management strategies effectively (score of 57%). Prioritizing the development of a sustainable financial strategy and increasing staff capacity and training are essential steps to enhance the reserve's management effectiveness.

There is clear capacity and mandate in place for engaging rights-holders and stakeholders. They are well incorporated into management planning and operations, ensuring that management is aligned with the social and economic context of the site. This is a great achievement considering the importance of SCMR ecosystem services.

Technical and operational capacity needs to be strengthened to implement activities as described in the management plan, including staff requirements to implement activities safely and efficiently. In other words, the site needs to increase the number of rangers to conduct effective surveillance throughout the site. Rangers need to be sufficiently equipped and trained to conduct safe and effective surveillance. SCMR Standard Operational Procedures needs to clearly outline the Rangers operational mandates, rules of engagement, compliance mechanisms, code of conduct and enforcement powers.

Conservation outcomes

Conservation outcomes at SCMR are a mixed picture. While the reserve performs well in some areas, it is evident from the IBEX scores that more work is needed to demonstrate the conservation of major natural values, where the reserve scores very low. The effective conservation of associated ecosystem services and cultural values scores higher, reflecting specific successes but also highlighting areas where improvements are necessary to ensure that all elements of the reserve's biodiversity and cultural heritage are preserved and enhanced in line with Green List Standard.

In conclusion, the SCMR has established a solid foundation in governance, design, and management practices. However, to meet the IUCN Green List fully, SCMR needs to enhance stakeholder participation, improve transparency, deepen its understanding of threats, and bolster its management capabilities to address these challenges effectively. Integrating comprehensive threat assessments, expanding community involvement, and securing financial sustainability are critical steps toward achieving and maintaining SCMR's performances.

4.7.7 Key recommendations for the IUCN Green List process

Based on suggestions made by the managers for how these could be addressed. Discussion on additional resources or changes needed to meet Green List standard.

In summary, the key recommendations for SCMR to meet the IUCN Green List Standard encompass enhancing transparency practices, improving design and management strategies, and demonstrating conservation outcomes. Key areas highlighted:

Good Governance

There are needs for SCMR to implement more inclusive governance practices. This includes broadening stakeholder engagement to encompass a wider representation of local communities, indigenous peoples, and minority groups, particularly emphasizing the active participation of women in decision-making roles. Some key measures are to:

- Improve transparency and accountability, ensuring that all management decisions and actions are clearly communicated and accessible to stakeholders
- Establish effective mechanisms for addressing grievances.

These measures will help SCMR meet the Green List Standard for legitimacy, voice, transparency, and accountability, fostering trust and cooperation among all stakeholders.

Sound Design and Planning and Effective Management

It is recommended for SCMR to focus on continuously updating its understanding of both ecological and cultural values through comprehensive and integrated threat assessments.

- Conduct regular evaluations of threats to inform adaptive management strategies.
- Integrate scientific research and local knowledge into these assessments to align management strategies with conservation goals and address long-term needs.
- Ensure the reserve's design supports the sustained preservation of natural and cultural values to maintain alignment with Green List objectives.
- Secure sustainable financial resources to support management efforts.
- Expand staff, particularly in enforcement roles, to strengthen management capabilities.
- Improve the capacity and skills of reserve personnel through targeted training programs for more effective management and to address specific conservation challenges.
- Align management practices with the socio-economic contexts of local communities.
- Ensure conservation efforts contribute positively to regional development, enhancing social acceptability and economic benefits of the reserve.

Demonstrate Conservation Outcomes

To achieve and demonstrate successful conservation outcomes in accordance with the Green List standards (Criteria 4.1 to 4.3), SCMR should establish and implement clear, measurable conservation targets. Regular monitoring and evaluation, aligned with these targets, will facilitate informed decision-making and adaptive management, essential for maintaining and enhancing the reserve's biodiversity and ecosystem services.

4.7.8 Additional resources (links)

- Management documents: Management Plan 2011-2016
- NPAS MEE 2023 of Sapodilla Cayes Marine Reserve
- Suggested websites for more detailed information about the protected area: Belize Fisheries Department, UNESCO World Heritage Sites

4.8 Port Honduras Marine Reserve

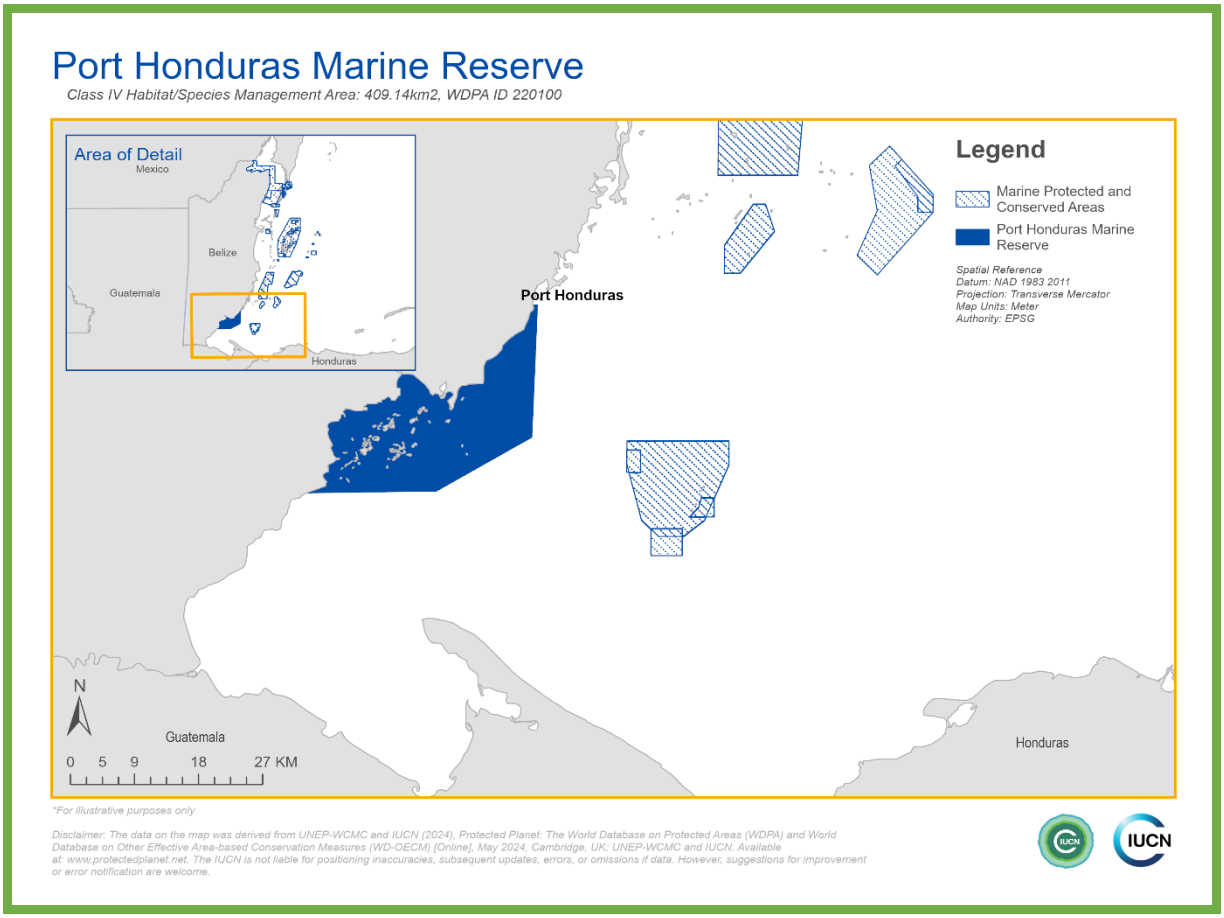
4.8.1 Key facts

Table 17. Site description, Port Honduras Marine Reserve

WDPA ID	**220100**
Reported area (km^2)	**409.14**
IUCN management category	**IV Habitat/Species Management Area**
Status:	**Designated**
Type of designation	**National**
Status year	**2000**
Governance type	**Shared governance**
Management authority	**Fisheries Department**
Co-Management	**Toledo Institute for Development and Environment**
Management plan (dates)	**2017-2021**
Management Effectiveness Evaluations	**MEE (2023)** **METT 2010, 2013, 2005, 2009, 2011**

4.8.2 Site Summary

Figure 10. Map, Port Honduras Marine Reserve



4.8.3 Brief overview

Description of the key ecosystems and species that the area aims to protect. Any cultural, historical, or indigenous values associated with the area

The Port Honduras Marine Reserve (PHMR), in the southern coastal waters of Belize, is a semi-estuarine system that is part of the Mesoamerican Reef (MAR) and an important component of the Maya Mountain Marine Corridor (MMMC).

Geography and location: PHMR is situated in Toledo District (the most southerly of Belize's districts), in the southern coastal waters of Belize. It is a semi-estuarine system that stretches from Monkey River in the north to Rio Grande bar in the south, and extending approximately 8 kilometres out to sea, beyond the East Snake Cayes, encompassing 409.14 square km (40, 468 ha) of the marine environment. Situated at the foot of the MMMC, one of Belize's three primary national biodiversity corridors, the PHMR is a critical link between the upland watersheds and terrestrial protected areas and the coastal and marine ecosystems of the Belize Barrier Reef.

Ecological richness: PHMR contains a diverse set ecological system is in relatively pristine condition and includes three related components: coastal and tidal wetlands, marine lagoonal habitats comprised of mangroves and seagrass beds, mangrove islands with associated shallow banks, and the Snake Cayes fringing reef system. Almost all of the coastal and island vegetation, including mangroves, is intact. The marine reserve is an important resource for local fishermen, PHMR has also been highlighted for its relatively high value as a fish nursery area, and its role in maintaining the viability of local manatee populations.

Biodiversity highlights: The Marine Reserve protects crucial ecosystems and species, including the critically endangered staghorn and elkhorn corals (*Acropora cervicornis* and *Acropora palmata*), hawksbill turtle (*Eretmochelys imbricata*) and goliath grouper (*Epinephelus itajara*). The area also protects the endangered green and loggerhead turtles (*Chelonia mydas* and *Caretta caretta*) and is of regional importance for the conservation of the endangered Antillean manatee (*Trichechus manatus manatus*), a subspecies of the West Indian manatee. PHMR contributes towards the regional viability of important commercial species, including the queen conch (*Lobatus gigas*) and spiny lobster (*Panulirus argus*). The mangroves of the cayes and coastal habitats are also important for sport fish species, (contributing to local coastal economies) and as nursery areas for many commercial marine species of economic importance.

Conservation and management: PHMR is zoned for multiple use, managed under a co-management agreement between the Belize Fisheries Department and the Toledo Institute for Development and Environment (TIDE), a non-profit NGO. PHMR was first established in 2000 for its role in maintaining the viability of local populations of the West Indian manatee. Following its establishment, the reserve has also been highlighted for its value as a fish nursery area and was included in national requirements for biodiversity protection.

Access, use and visitation: Marine resources protected by Port Honduras Marine Reserve include commercially important finfish such as snook, snappers and groupers, in addition to the Caribbean spiny lobster and the queen conch. These provide an important food and income source for the local communities, as well as direct revenue generation and provision of an important source of protein. The Marine Reserve also supports a range of tourism uses - sport fishing, snorkelling, SCUBA diving, kayaking and bird watching, attracting visitors from all over the world, and benefiting not only local tour guides, but also helping to sustain the hotels, guest houses and restaurants and a range of other local businesses in the stakeholder communities.

Cultural, spiritual and heritage values: Several archaeological sites have been identified within PHMR area, these include a trading post at Wild Cane Caye, settlements at

Frenchman's Caye, salt production ponds at Stingray Lagoon (Punta Ycacos), and underwater sites of Green Vine Snake Caye and Pork-and-Doughboy Point. With the advantages of a natural harbour and a strategic location at the mouth of Deep River, Wild Cane Caye has been identified as a prehistoric coastal Maya trading station in southern Belize. The PHMR plays a critical role for the buffer communities of Punta Gorda, Punta Negra and Monkey River, and for Toledo District as a whole. It provides a range of ecosystem services, including coastal protection provided by the barrier reef, atolls and mangroves, the support of the fisheries industry and the contribution towards tourism income among others.

Threats and challenges: The four main threats to the Port Honduras Marine Reserve have been identified as climate change, transboundary fisheries, overfishing/unsustainable fishing practices and inappropriate land use/unsustainable development. In addition, PHMR has experienced the same large-scale threats as most reefs in the region, including hurricanes, loss of herbivorous urchins and parrotfish, unsustainable fishing, coral disease and mass coral bleaching triggered by prolonged high sea surface temperatures.

4.8.4 Values

The 'natural, ecosystem, cultural outcomes' NECO table for Port Honduras Marine Reserve (PHMR) shows all major natural, ecosystem services, and cultural values (Criterion 3.7). This means that PHMR has set thresholds for success for all values, even though missed conditions and trends for some values; thus, it is almost fully aligned to be able to determine conservation outcomes (Criteria 4.1, 4.2, 4.3).

Table 18. NECO, Port Honduras Marine Reserve

	Major values	Thresholds	Conditions	Trends
Natural values	Goliath Grouper	Minimum size for sexual maturity is 115cm for males and 120cm for females	average length of 66.3cm	Mostly juveniles are being captured which can be detrimental to the population
	Hawksbill Turtle	Atleast 35 Nesting females in PHMR	63 nests in 2022	.2 fold increase
	Green Turtle	Historical nesting along Punta Negra	None observed in recently monitoring	Decreasing or non existent nesting sites within PHMR, adults are still sited to be feeding and utilizing PHMR
	Coral	Score of 3.8 in 2018	1.8 in 2022	Decreasing
	Lobster	Average ~20 per hour (2011)	3.1 per hour in the open season to 4.8 per hour by the end of the close season	Decreasing
Ecosystem Services	Food	575,000 lbs landed between Monkey River to Sarstoon valued at about $2,002,000BZD	N/A	N/A
	Carbon Storage	Study not yet reviewed but would need to include more sites as it was only at one site in the Frenchman Lagoon	N/A	Mangrove cover within PHMR is stable therefore we believe this value has been consistent throughout the years, however a

				study would need to be conducted to assess the value for littoral forests
	Recreation	Average of 1500 Foreign Visitors	N/A	# of local visitors is not monitored
Cultural Values	Garifuna people utilize PHMR to extract seafood products to be used in spiritual rituals	N/A	Only one permit was approved	We believe this activity has limited to no impact on the reserve, however there are instances in which they have requested the harvesting for sea turtles but was not approved
	Islands within the PHMR such as Wildcane Caye, Frenchman Caye, Green Vine Snake Caye and Pork, Doughboy Point and Stingray Pond has been documented to be utilized by the maya for trading station, settlement and salt production.	N/A	N/A	N/A

Recommended improvements in the presentation of outcome achievements in the NECO table that would help the MPA comply with the IUCN Green List Standard include:

- Implement defined thresholds and continuous tracking for cultural values to align with the dynamic nature of environmental management.
- Develop clear and measurable performance indicators for ecosystem services, with a mechanism for continuous monitoring and trend analysis.
- Further identify and analyse the cultural values and its thresholds, conditions and trends
- Regularly update and adapt trend reports and thresholds to ensure they are responsive to both current and predicted environmental conditions.

4.8.5 Summary of IUCN Green List self-assessment IBEX

IBEX scores by component

Overall Score	Good governance	Sound design and planning	Effective management	Conservation outcomes	
57%	**98%**	**72%**	**52%**	**8%**	**Partial alignment**

IBEX scores by criterion

Good governance			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
1.1 Guarantee legitimacy and voice	100%	There are clearly defined, legitimate equitable and functional governance arrangements, in which the interests of civil society, all substantive and legitimate rights-holders and stakeholders are fairly represented and addressed. Governance mechanisms promote gender equity and diversity. There is mutual respect for the governance arrangements in place and for the management authority among key actors. Processes are in place to redress any identified legacy issues relating to site establishment, designation(s) or past management decisions.	Maintain good practices to be inclusive. Establish more accessible platforms for disseminating information and improving the consultative mechanisms to ensure they are more responsive and accessible to local communities and stakeholders
1.2 Achieve transparency and accountability	90%	Governance structures are clear and well-communicated. Management provisions are documented and available and regularly revised. Membership of key decision-making bodies is public and there are accessible means to communicate on issues	Comment from IBEX: Press Releases are made when relevant and available on the webpage (1.2.4)

		of concern. Decision-making processes are transparent, and their results well-documented and published. There is an active process for addressing disputes and grievances related to governance and management., with response mechanisms in place	
1.3 Enable governance vitality and capacity to respond adaptatively	100%	Planning and management draws on the best available knowledge of the social and ecological context of the site, using an adaptive management framework that anticipates, learns from and responds to change in its decision-making. Planning and management processes draw on multiple knowledge sources (scientific, experiential, local and traditional knowledge) as well as appropriate technology. The site has, where relevant, considered historical changes and future projections in social, ecological and climate conditions. Adaptations to projected climate change impacts are factored into governance and management structures.	Comment from IBEX: priority actions are to establish Community Development Plan and PHMR Climate Adaptation Plan Maintain and increase the adaptive management structure of the site.
Sound design and planning			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
2.1 Identify and understand major site values	80%	There is a clear and defined area-based conservation measure in place for which the major values for conservation of nature with associated ecosystem services, and cultural values are identified and understood. The site has a current and functioning management plan (or equivalent)	Complete, as proposed, in 2024 (2.1.3)

		that is regularly revised and updated.	
2.2 Design for long-term conservation of major site values	80%	The site's designation, scale, connectivity, and characteristics are well-aligned with conservation goals and objectives. Major site values are fully identified and understood, and design and planning can help address their long-term conservation needs. The design of the site in its landscape/seascape context supports long-term maintenance of the major site values.	Further understanding the key site values and align with the site thresholds
2.3. Understand threats and challenges to major site values	100%	There is a good understanding of all current threats and challenges to major site values, including climate change impacts. All threats and challenges are described in sufficient detail to enable informed planning and management to adapt to or mitigate them.	Conduct systematic threat assessments during every MP review cycle to enhance the understanding of threats, including climate change.
2.4 Understand social and economic context	21%	There is limited understanding presented on the social and economic context of the site and its stakeholders.	Conduct assessment to determine site impact on the region's local economy and social balances.
Effective management			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
3.1 Develop and implement a long-term management strategy	27%	There is only a limited form of management strategy, which lacks clear and relevant goals and objectives.	Develop the site management plan with goals and objectives for management of the natural values and social/economic objectives; management strategies and activities to achieve goals over the long term and activities allowed or prohibited, zoning, restrictions on access to or use.

			Acquire equipment and build infrastructure needed to conduct activities safely and efficiently. Increase the number of staff to implement activities safely and efficiently. Secure a stable, diversified financial base and develop a comprehensive financial sustainability strategy.
3.2 Manage ecological condition	28%	There is some intent and planning to manage ecological processes and attributes but limited technical or operational capacity.	Identify site´s ecological features and processes that require protection to maintain or enhance the site's major values. Identify and implement strategies and activities needed to protect ecological features and processes.
3.3 Manage within social and economic context of the area	75%	There is capacity and mandate in place for engaging rights-holders and stakeholders. They are incorporated into most areas of management planning and operations, covering most of the social and economic context of the site.	The economic and social context of the site needs to be considered to support goals and objectives included in the management plan. It is also strategic to consider opportunities to enhance economic and social benefits the site provides to local communities.
3.4 Manage threats	33%	There is some intent, but limited capacity, to respond to threats, if identified, to recognized major site values.	Design and implement a work program with activities that effectively respond to the main threats to natural and cultural values as well as the site's goals and objectives.
3.5 Effectively and fairly enforce laws and regulations	94%	Laws, regulations and restrictions are fairly and effectively applied to all aspects of site management. There is adequate organization of compliance operations and	The site needs to increase the number of rangers to conduct effective surveillance throughout the site.

		coordination on enforcement. Information on regulations and their implications is fully available to local stakeholders and the public.	Rangers need to be sufficiently equipped and trained to conduct safe and effective surveillance.
3.6 Manage access, resources use and visitation	83%	When permitted, activities within the area that involve direct access to resources are compatible with and support the achievement of the area's conservation goals and objectives, meet the needs of users, and are properly described and regulated. When permitted, tourism and visitor management are compatible with and support the achievement of the area's conservation goals and objectives.	Work on permits, access control, enforcement and education strategies to minimise harm to major site values coming from use and access to natural resources. Improve the site´s services and facilities in order to meet safety and environmental standards as well as needs of different audiences and age groups, including disadvantaged people.
3.7 Measure success	25%	Some major site values are assessed through a limited set of monitoring, evaluation and learning programmes.	Set monitoring, evaluation, and learning system to identify and assess the key site values
Successful conservation outcomes			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
4.1 Demonstrate conservation of major natural values	0%	There are no discernible conservation outcomes for any major natural values.	Set a system to record the outcomes for major ecological values
4.2 Demonstrate conservation of major associated ecosystem services	25%	The site can show limited success from conservation efforts for some major ecosystem services.	Suggestion from the IBEX: Belize Blue Carbon: Establishing a national carbon stock estimate for mangrove ecosystems
4.3 Demonstrate conservation of cultural values	0%	There are no discernible conservation outcomes for any major cultural values.	Document cultural values outcomes

4.8.6 Summary and recommendations

Summary of the key achievements and identification of areas where the protected area does not meet Green List standard.

Governance

According to the high score of the self-assessment for Component 1 Governance (98%), the Port Honduras Marine Reserve (PHMR) stands as a well-defined and officially recognized area under the governance of national or regional authorities, showcasing an excellent and documented system guiding its decision-making processes. This governance structure incorporates the active participation of local communities, civil society organizations (CSOs), and rights-holders in management decisions. These stakeholders are integral to the planning and implementation of relevant activities within and around the site, ensuring that all local communities, indigenous peoples, and rights-holders are identified and involved in discussions regarding the management of the site. The participation of women in decision-making processes and site-level staffing further emphasizes the inclusive approach of the reserve's management.

The Reserve's management framework is characterized by transparency and accessibility, with the Management Plan and the names of the formal decision-making body being publicly available. However, the grievance mechanism, while active, needs some improvement in accessibility for local communities, indigenous peoples, and rights-holders. The management effectively integrates field monitoring and enforcement activities, consultations with rights-holders, and considers national government priorities, goals, and ambitions. Additionally, it ensures that the problems, priorities, goals, and ambitions of local communities are adequately reflected in the site management plans and decisions, blending scientific evidence with the knowledge and experience of local communities, indigenous people, and staff.

Furthermore, the site's planning and activities consider both past and ongoing changes within local communities and ecological conditions, alongside future projections of social, ecological, and climate changes. By forecasting and anticipating these changes, the Reserve aims to adapt and respond proactively to ensure sustainable management and conservation of the marine environment. This comprehensive and participatory approach not only fosters support and awareness among the local communities and main CSOs but also ensures the resilience and long-term success of the Port Honduras Marine Reserve.

Design and Planning

While PHMR's major values for conservation of nature are accurately identified and well understood, the associated ecosystem services and cultural values would benefit from further analysis. The site has a functioning Management Plan 2017-2021 (updated version set to be completed in 2024), and its designation, scale, connectivity and characteristics are well-aligned with conservation goals.

Previous objectives include promotion of sustainable marine resource use, ensuring continued sustainable resource extraction for the benefit of traditional fishing communities, promoting community stewardship of marine resources, providing a sustainable recreational and tourism environment to enhance economic and social benefits, and engaging in effective research and monitoring.

There is a good understanding of threats and challenges to site values, according to Criterion 2.3. Systematic threat assessments need to be conducted during every management plan cycle (including for the 2024 review) to update threat statuses, including climate change.

However, an IBEX score of 21% indicates there is only a limited understanding of economic and social impacts of the site. They need to be analysed and factored in the management plan design to ensure full Green List alignment.

Effective Management

PHMR does not have a current management plan, so the site will need to update a new management plan. Completing the management plan update process is critical to get strategies and activities in place to achieve goals and objectives needed to protect ecological features and processes.

Despite not having an updated management plan, laws, regulations and restrictions are fairly and effectively applied to all aspects of site management, according to Criterion 3.5. Another positive aspect is the capacity to engage site´s rights-holders and stakeholders and that some opportunities to enhance social and economic benefits to local communities are being considered.

It is important to increase the number of staff, improve equipment and infrastructure conditions to conduct activities safely and efficiently. Secure a stable, diversified financial base and develop a comprehensive financial sustainability strategy is required as well.

Even though access and permitted activities in the site are considered compatible with values and objectives and are described clearly to the public, work on permits, access control, enforcement and education strategies to minimise harm to major site values coming from use and access to natural resources is required.

Conservation outcomes

According to the previous Management Plan, PHMR has shown initiatives to make efforts in maintaining and supporting the biodiversity of its marine and coastal environments.

According to the IBEX self-assessment, the reserve self-scored low in demonstrating the overall conservation of major natural values and ecosystem services, with particularly low effectiveness in meeting specific targets related to the conservation of cultural values. The limited success in these areas highlights a critical need for enhanced monitoring and reporting mechanisms to better document and analyse the impacts of conservation efforts.

There is also a significant challenge in ensuring that the conservation initiatives lead to measurable and significant outcomes that can be systematically assessed against the Green List criteria. This includes the need to establish clearer conservation targets, improve data collection practices, and implement more robust evaluation strategies to assess the effectiveness of conservation actions over time.

4.8.7 Key recommendations for the IUCN Green List process

Based on suggestions made by the managers for how these could be addressed. Discussion on additional resources or changes needed to meet Green List standard.

To strengthen the governance, design, planning, management, and conservation outcomes of the Port Honduras Marine Reserve (PHMR) in alignment with the IUCN Green List Standard, it is essential to use a holistic approach that incorporates both the insights from the IBEX scores and the practical suggestions made by the co-managers. Some recommendations are:

Governance

Improving governance within PHMR is crucial for meeting the IUCN Green List's criteria for good governance (Criteria 1.1, 1.2, 1.3). This includes:
- Increase transparency and accountability of management actions.
- Develop more accessible and interactive platforms for information dissemination.
- Implement a responsive grievance mechanism.
- Facilitate better stakeholder engagement and transparency as per Green List Standard.
- Ensure governance structures meet and exceed the needs for equitable governance and effective management.
- Foster trust and collaboration among stakeholders and managing authorities.

Design, planning and effective management

- Integrate comprehensive socio-economic impact assessments into management planning processes.
- Ensure the economic and social contexts of surrounding communities are well understood and addressed.
- Improve the reserve's capability to address emerging and existing threats effectively.
- Refine design and planning processes to fully comply with IUCN Green List's Criteria 2.1 to 2.4.
- Address resource and capacity gaps to align with the IUCN Green List's effective management criteria (Criteria 3.1 to 3.7).
- Develop a sustainable financial strategy to secure necessary funds for conservation initiatives
- Enhance staff capacity through targeted training programs.
- Improve infrastructure, particularly for surveillance and enforcement.
- Bolster management capabilities to protect and manage natural and cultural resources effectively.

Demonstrate conservation outcomes

To improve conservation outcomes and align with the IUCN Green List's criteria for successful conservation outcomes (Criteria 4.1 to 4.3), PHMR should focus on establishing clear, measurable conservation targets. Implementing robust monitoring and evaluation programs will help in assessing the effectiveness of conservation actions and facilitate necessary adjustments. This approach ensures that conservation efforts are appropriately targeted and effective, thereby enhancing the overall health and sustainability of the PHMR's ecosystems.

4.8.8 Additional resources (links)

- Management documents: Management Plan 2017-2021
- Suggested websites for more detailed information about the protected area
- Websites: Belize Fisheries Department, UNESCO World Heritage Sites, BIOPAMA, The Toledo Institute for Development and Environment (TIDE), MAR Fund
- NPAS-MEE 2023

4.9 Laughing Bird Caye National Park

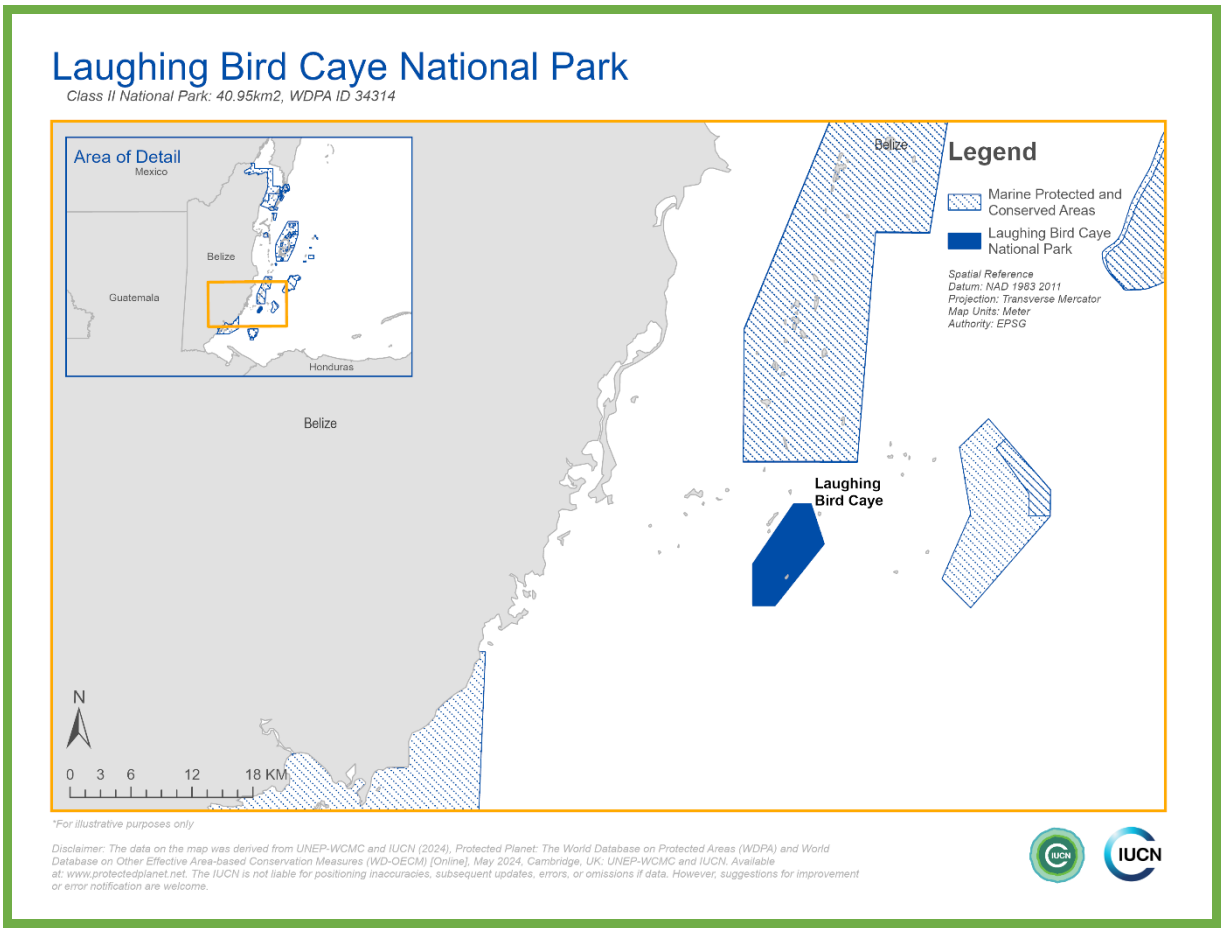
4.9.1 Key facts

Table 19. Site description, Laughing Bird Caye National Park

WDPA ID	**34314**
Reported area (km²)	**40.95**
IUCN management category	**II National Park**
Status:	**Designated**
Type of designation	**National**
Status year	**1996**
Governance type	**Shared governance**
Management authority	**Forest Department**
Co-Management	**Southern Environmental Association**
Management plan (dates)	**2011-2016**
Management Effectiveness Evaluations	**MEE (2023)** **METT 2010, 2013**

4.9.2 Site Summary

Figure 11. Map, Laughing Bird Caye National Park



4.9.3 Brief overview

Description of the key ecosystems and species that the area aims to protect. Any cultural, historical, or indigenous values associated with the area

Laughing Bird Caye National Park (LBCNP) - the caye itself and the surrounding waters - is part of the Mesoamerican Reef (MAR) and is one of seven marine protected areas that form the Belize Barrier Reef Reserve System, a UNESCO World Heritage Site. The protected area has developed around Laughing Bird Caye, a small (40.95 km2/0.73 ha) island named for the laughing gulls that once used the island as a nesting site.

Geography and location: As part of the larger Southern Belize Reef Complex system-level planning unit, LBCNP lies in the general area of UTM 384 549 N, 1859 762 W (16˚26.59'N; 88˚11.85'W), 12 miles (19.3 km) east of Placencia, in the Stann Creek District in southeastern Belize.

Ecological richness: LBCNP is home to a collection of regional ecosystems of remarkable biodiversity, beauty and scientific value, including reef, seagrass, sparse algae/sand and herbaceous beach community/littoral forest. Laughing Bird Caye is known for its remarkable faro formation, which is rich in biodiversity and diverse habitats that are home to at least twenty-two species of international importance. The protected waters of LBCNP are vital for conch, with high densities of reproducing adults observed. The park also supports important commercial species populations that contribute to the fishing industry. The sandy beaches of the cays are important nesting sites for hawksbill turtles, while the remaining beach vegetation provides nesting sites for birds and resting places for migratory species.

Biodiversity highlights: Laughing Bird Caye National Park encompasses both terrestrial and marine fauna. Many species of global conservation concern are found in LBCNP, including the critically endangered elkhorn and staghorn corals (*Acropora plamata* and *A. cervicornis*), the hawksbill turtle (*Eretmochelys imbricata*) and the goliath grouper (*Epinephelus itajara*). The area also protects the endangered green and loggerhead turtles (*Chelonia mydas* and *Caretta caretta*). As a non-extractive reserve, it also contributes to the regional viability of important commercial species, including the queen conch (*Strombus gigas*) and spiny lobster (*Panulirus argus*).

Conservation and management: The LBCNP is a complete No Take Zone (NTZ), which was originally declared a protected area in 1991 under the National Parks System Act (SI 167 of 1991). Later, conservationists and tour operators recognised the need for greater regulation if the qualities of the area were to be maintained. The National Park was subsequently extended in 1996 (SI 94 of 1996), as part of Belize's World Heritage Site designation, to include the entire adjacent faro and the associated unique and representative biodiversity. LBCNP is managed under a co-management agreement between the Forest Department and the Southern Environmental Association (SEA). SEA has site-level management responsibility, including hiring of staff, surveillance and enforcement, research and monitoring, education and outreach and administration, and reports to the Forest Department.

Access, use and visitation: Prior to its designation as a protected area, Laughing Bird Caye was considered a local tourist destination. Historically, the area around Laughing Bird Caye was an important fishing ground for conch and lobster for Placencia and Sarteneja until it was declared a no-take area. More recently, LBCNP has become a major attraction for snorkellers and divers and is important in sustaining the tourism industry of central Belize's coastal communities, particularly Placencia. In fact, Placencia is a major contributor to Belize's national tourism revenue.

Cultural, spiritual and heritage values: The community used Laughing Bird Caye as a camping site for regular fishing trips, recreational family visits, and culturally important trips such as the Adugahatía, an integral part of the Dugu ceremony, which involves the gathering

of specific marine products to fulfil the wishes of traditional ancestral spirits for the Dugu ceremony. During community consultations on the establishment of the protected area, some participants raised concerns about how restrictions on camping on the caye might affect the ceremony. Access to Buttonwood Caye is now provided by SEA as an alternative for this purpose.

Threats and challenges: Like most marine protected areas in the Caribbean, climate change is a significant challenge beyond the control of the LBCNP's site-level and national management authorities. Other threats to the LBCNP include fishing, boating practices, agricultural run-off and the emerging risks of oil exploration and extraction near the national park, as well as the transport of crude oil from nearby extraction sites. Concerns have also been raised about the alteration of terrestrial ecosystems to maintain aesthetically pleasing sandy beaches as a result of revenue generation mechanisms focused on tourism. The presence of invasive species such as casuarina and lionfish, and limited management to control them, has also been highlighted.

4.9.4 Values

The ‘natural, ecosystem, cultural outcomes’ NECO table for Laughing Bird Caye National Park (LBCNP) shows most of major natural, ecosystem services, and cultural values (Criterion 3.7). This means that PHMR has set thresholds for success for almost all values, even though missed conditions and trends for some of them; thus, it is almost fully aligned to be able to determine conservation outcomes (Criteria 4.1, 4.2, 4.3).

Table 20. NECO, Laughing Bird Caye National Park

	Major values	Thresholds	Conditions	Trends
Natural values	Bird colonies (Brown pelican, Laughing gull)	N/A	RESULTS COME FROM MONITORING PROGRAM	INTERPRETATION OF RESULTS FROM COLUMN F (cf. Conditions)
	Sea Turtles	N/A	WONT BE ABLE TO DO WITHOUT RESULTS	N/A
	Natural beach vegetation	N/A	N/A	N/A
	Sea grass communities	N/A	N/A	N/A
	Corals	N/A	N/A	N/A
Ecosystem Services	Ecotourism.	Carrying capacity threshold: 50 and less visitors daily.	Average of 23 visitor's per day in 2023.	Controlled tourists occupancy so the threshold is not exceed.
	Research and education	No threshold values set	Outreach, Educational and awareness programs.	Educational programs (tourists, visitors, students and locals)
Cultural Values	LBCNP. Provides a platform for conservation and awareness for local communities in the importance of conserving the natural environment.	None(a balanced relationship with local communities, schools and stakeholders)	Awareness programs with schools and locals. Frequency: Several times a year and when opportunity arise.	On going efforts to strengthen relationships with local communities. Establishing better communication with local communities providing insight and inspiring locals on the conservational works needed for a better environment.

Recommended improvements to the reporting of NECO table conservation outcomes that would comply with the IUCN Green List Standard include:

- Enhance monitoring protocols to effectively prioritize critical questions about the natural values with their thresholds and trends
- Detail thresholds for cultural values and regularly assess their conditions and trends
- Establish performance indicators further for ecosystem services, with a continuous monitoring system to track and analyse their progress
- Systematically review and modify trend reports and thresholds to ensure they reflect current conditions and anticipate future changes

4.9.5 Summary of IUCN Green List self-assessment IBEX

IBEX scores by component

Overall Score	Good governance	Sound design and planning	Effective management	Conservation outcomes	
63%	**76%**	**74%**	**64%**	**38%**	**Near alignment**

IBEX scores by criterion

Good governance			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
1.1 Guarantee legitimacy and voice	67%	There are defined and functioning governance arrangements that do attempt to represent the interests of civil society, and all rights-holders and stakeholders are identified and engaged. However, more effort may be required in terms of, ie, clarity, inclusiveness, mutual respect, gender-responsiveness, land rights. Any legacy issues relating to site establishment, designation(s) or past management decisions are identified and understood, with plans in place for redress where applicable.	Continue to inmprove fostering inclusiveness and addressing any legacy issues through redress mechanisms
1.2 Achieve transparency and accountability	70%	Governance structures are communicated and management provisions are documented and available. Membership of key decision-making bodies is known. There are some means to communicate on issues of concern. Decision-making processes are generally transparent, and their results	Enhance accessibility and clarity in communication to further boost stakeholder confidence and engagement

		published. Processes for addressing disputes and grievances related to governance and management exist but could be more accessible regarding publishing and language with clear response mechanisms.	
1.3 Enable governance vitality and capacity to respond adaptatively	94%	Planning and management draws on the best available knowledge of the social and ecological context of the site, using an adaptive management framework that anticipates, learns from and responds to change in its decision-making. Planning and management processes draw on multiple knowledge sources (scientific, experiential, local and traditional knowledge) as well as appropriate technology. The site has, where relevant, considered historical changes and future projections in social, ecological and climate conditions. Adaptations to projected climate change impacts are factored into governance and management structures.	Continual adaptation to social, ecological, and climate-related changes is emphasized, and further integrating projected climate change impacts into planning is advised.
Sound design and planning			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
2.1 Identify and understand major site values	100%	There is a clear and defined area-based conservation measure in place for which the major values for conservation of nature with associated ecosystem services, and cultural values are identified and understood. The site has a current and functioning management plan (or equivalent) that is regularly revised and updated.	Maintain the good practices and identify changes of major site values

2.2 Design for long-term conservation of major site values	100%	The site's designation, scale, connectivity, and characteristics are well-aligned with conservation goals and objectives. Major site values are fully identified and understood, and design and planning can help address their long-term conservation needs. The design of the site in its landscape/seascape context supports long-term maintenance of the major site values.	Keep good efforts in aligning the LBCNP's goals with the long-term conservation needs.
2.3. Understand threats and challenges to major site values	30%	There is limited understanding of threats to major site values, including climate change impacts. Either major site values are not fully identified, and therefore understanding of threats is limited; and/or understanding of threats is lacking/limited for the identified major site values.	Conduct assessment to understand threats and identify appropriate actions.
2.4 Understand social and economic context	65%	There is an understanding of the social and economic context presented, and this is reflected in some management goals and objectives but lacks stakeholder mapping.	Conduct assessment to better understand site impact on social balances of the region.
Effective management			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
3.1 Develop and implement a long-term management strategy	61%	There is an operational management strategy with goals and objectives for the conservation of most major site values, and address most of the ecological, social and economic context of the site. Management approaches contribute to some extent to fair and functioning working conditions. Implementation is mainly supported by adequate resourcing and material and tracked through	Acquire equipment and build infrastructure needed to conduct activities safely and efficiently. Increase the number of staff (particularly women) to implement activities safely and efficiently. Secure a stable, diversified financial base and develop a

		a work planning system. However, a lack of financial resources may be preventing core management operations.	comprehensive financial sustainability strategy.
3.2 Manage ecological condition	100%	The site can clearly demonstrate that ecological attributes and processes are being managed actively to maintain the site's major site values.	Maintain good management of the natural condition
3.3 Manage within social and economic context of the area	83%	There is clear capacity and mandate in place for engaging rights-holders and stakeholders. They are well incorporated into management planning and operations, ensuring that management is aligned with the social and economic context of the site.	It is strategic to consider opportunities to enhance economic and social benefits the site provides to local communities.
3.4 Manage threats	33%	There is some intent, but limited capacity, to respond to threats, if identified, to recognized major site values.	Design and implement a work program with activities that effectively respond to the main threats to natural and cultural values as well as the site's goals and objectives.
3.5 Effectively and fairly enforce laws and regulations	30%	Some laws, regulations and restrictions are applied, but inconsistently and only to certain aspects of site management. There is no organized compliance operation or enforcement oversight. There is little public awareness of, or access to, information on regulations and their implications.	The site needs to increase the number of rangers to conduct effective surveillance throughout the site. Rangers need to be sufficiently equipped and trained to conduct safe and effective surveillance. LBCNP SOP needs to clearly outline the Rangers operational mandates, rules of engagement, compliance mechanisms, code of conduct and (if any) enforcement powers.
3.6 Manage access, resources use and visitation	97%	When permitted, activities within the area that involve direct access	Improve the site´s services and facilities in order to meet safety

		to resources are compatible with and support the achievement of the area's conservation goals and objectives, meet the needs of users, and are properly described and regulated. When permitted, tourism and visitor management are compatible with and support the achievement of the area's conservation goals and objectives.	and environmental standards as well as needs of different audiences and age groups, including disadvantaged people.
3.7 Measure success	40%	All major site values are assessed through a partial set of monitoring, evaluation and learning programmes, that begins to objectively determine successful conservation.	Establishing robust monitoring, evaluation, and learning programs to assess conservation success and inform adaptive management practices is advised to enhance outcome-based conservation strategies
Successful conservation outcomes			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
4.1 Demonstrate conservation of major natural values	0%	The site can show limited success from conservation efforts for some major natural values.	Establishing clear, measurable targets and enhancing monitoring protocols are recommended to track and report on these outcomes effectively
4.2 Demonstrate conservation of major associated ecosystem services	63%	The site can demonstrate success through conservation efforts for the majority of major ecosystem services.	While there are limited successes in conserving ecosystem services, further developing ecosystem service conservation efforts is suggested
4.3 Demonstrate conservation of cultural values	100%	The site can show partial or improved success through conservation efforts for most major cultural values.	Demonstrate the recorded conservation efforts for pre-defined cultural values

4.9.6 Summary and recommendations

Summary of the key achievements and identification of areas where the protected area does not meet Green List standard.

Governance

Laughing Bird Caye National Park is a formally recognized protected area, defined and governed by statutory instruments and endorsed by relevant national or regional authorities. The NPAS MEE 2023 indicated the management plan of the park was created with full stakeholder participation and aligns with both national government priorities and local community ambitions. Despite having a formal decision-making body and a structured system for decision-making processes, some areas such as climate change assessments and program monitoring and evaluation lack thorough methodology and implementation, necessitating updates to best management practices and systematic strategies for effective climate resilience.

The park's management plan incorporates past and ongoing ecological and climate changes while attempting to forecast future impacts, reflecting an adaptive management approach. However, the existing climate change resilience strategies are not considered effective in mitigating exacerbating threats. According to the NPAS MEE 2023, the park partially involves indigenous peoples and local communities in management discussions, and while they have legitimate rights of access and resource use, their involvement in management activities could be improved. Although the Board of Directors includes local community representatives who participate in decision-making processes, there is no local advisory committee to further integrate community input, and engagement strategies are not consistently implemented. The IBEX score of 67% for 1.1 Guarantee legitimacy and voice shows the lack of the inclusivity and collective data and voices of all stakeholders involved in the areas.

Communication and education strategies for the park exist but remain unimplemented, contributing to a lack of awareness among local stakeholders about the park's resources and threats. While over 75% of stakeholders understand and support the park’s objectives, conflict resolution strategies and grievance mechanisms are absent. The park's management maintains some communication with key organizations through established forums, yet the overall effectiveness of these collaborations needs enhancement. Strengthening program monitoring, updating management guidelines, and systematically involving local communities in decision-making processes will be crucial for improving the park's management and resilience to climate change.

Design and Planning

According to NPAS MEE 2023, while the site has clearly defined objectives that are considered adequate for planning and management, only 1 of 5 is being achieved effectively (increase awareness of marine ecosystems and conservation benefits), 3 of 5 are being achieved to some extent (protect and maintain natural and scenic values, act as a model of co-management as part of the Belize Barrier Reef System World Heritage Site, provide opportunities for economic benefit for local stakeholder communities), and 1 of 5 is being achieved to a limited extent (provide environmentally sustainable, well-managed recreational opportunities for local, national and international visitors).

LBCNP’s major values for conservation of nature with associated ecosystem services and cultural values are accurately identified and well understood. The site has a functioning MP (2011-2016), and its designation, scale, connectivity and characteristics are well-aligned with conservation needs and goals.

Consistent with the overall IBEX score, the NPAS MEE 2023 found that, while the PA design contributes towards the achievement of management objectives and conservation target goals, some improvements should still be made.

Specifically, assessments need to be conducted to understand threats (including climate change) and identify appropriate actions. The site's impact on social balances of the region also requires further analysis.

Effective Management

The site can clearly demonstrate that ecological attributes and processes are being managed actively to maintain the site's major values. However, more management activities need to be implemented as described in the management plan, and for this to be achieved equipment and infrastructure conditions need to improve. There is also need for increasing the number of staff (particularly women) to implement activities safely and efficiently. To get this done, the development of a comprehensive financial sustainability strategy for LBCNP is essential.

There is clear capacity and mandate in place for engaging rights-holders and stakeholders. They are well incorporated into management planning and operations, ensuring that management is aligned with the social and economic context of the site. However, it is strategic to consider opportunities to enhance economic and social benefits the site could provide to local communities.

Conservation outcomes

The IBEX scores reflect some challenges for the site, indicating that while LBCNP advanced in some areas, it falls short in demonstrating the broader conservation success required by the Green List Standard. Specifically, the LBCNP's management has struggled to showcase significant progress in the conservation of major natural values and ecosystem services, with an IBEX score revealing limited success in these areas.

These outcomes suggest a need for improved monitoring and evaluation frameworks that can better track and demonstrate the effectiveness of conservation efforts within the national park.

4.9.7 Key recommendations for the IUCN Green List process

Based on suggestions made by the managers for how these could be addressed. Discussion on additional resources or changes needed to meet Green List Standard.

Key recommendations for the IUCN Green List process emphasize enhancing governance, improving design and management strategies, and demonstrating conservation outcomes to align with the Green List. Key areas highlighted:

Good Governance

To enhance governance performance, LBCNP should focus on improving stakeholder engagement and ensuring that governance structures are transparent and accountable. This includes:

- Better integrate local and indigenous knowledge into management decisions
- Strengthen the grievance mechanisms to be more accessible and effective
- Enhance the clarity and inclusiveness of decision-making processes, ensuring they respect gender responsiveness and land rights, aligning with the IUCN Green List Criteria 1.1 to 1.3.

Sound Design and Planning and Effective Management

LBCNP is advised to deepen its understanding of threats, particularly those exacerbated by climate change, and integrate this knowledge into a more adaptive management planning framework. The recommendations include:

- Regularly assess threats and update management plans to ensure that the park's design and operations continue to align with its conservation goals and are capable of addressing long-term conservation needs, in accordance with Green List Criteria 2.1 to 2.4.
- Address resource and capacity gaps. LBCNP should seek sustainable revenue solutions
- Enhance staff capacity through targeted training programs. This will improve the park's ability to manage ecological conditions and respond to threats more effectively, improving compliance with Green List Criteria 3.1 to 3.7

Demonstrate Conservation Outcomes

To meet the Green List for conservation outcomes better, LBCNP must establish clear, measurable conservation targets and implement robust monitoring and evaluation programs. This will help to assess the impact of conservation efforts more accurately and facilitate necessary adjustments to management strategies, ensuring the park can demonstrate the success of its conservation activities in line with Green List Criteria 4.1 to 4.3.

4.9.8 Additional resources (links)

- Management documents: Management Plan 2011-2016
- Suggested websites for more detailed information about the protected areas: The Southern Environmental Association (SEA), UNESCO World Heritage Sites
- NPAS-MEE 2023

4.10 South Water Caye Marine Reserve

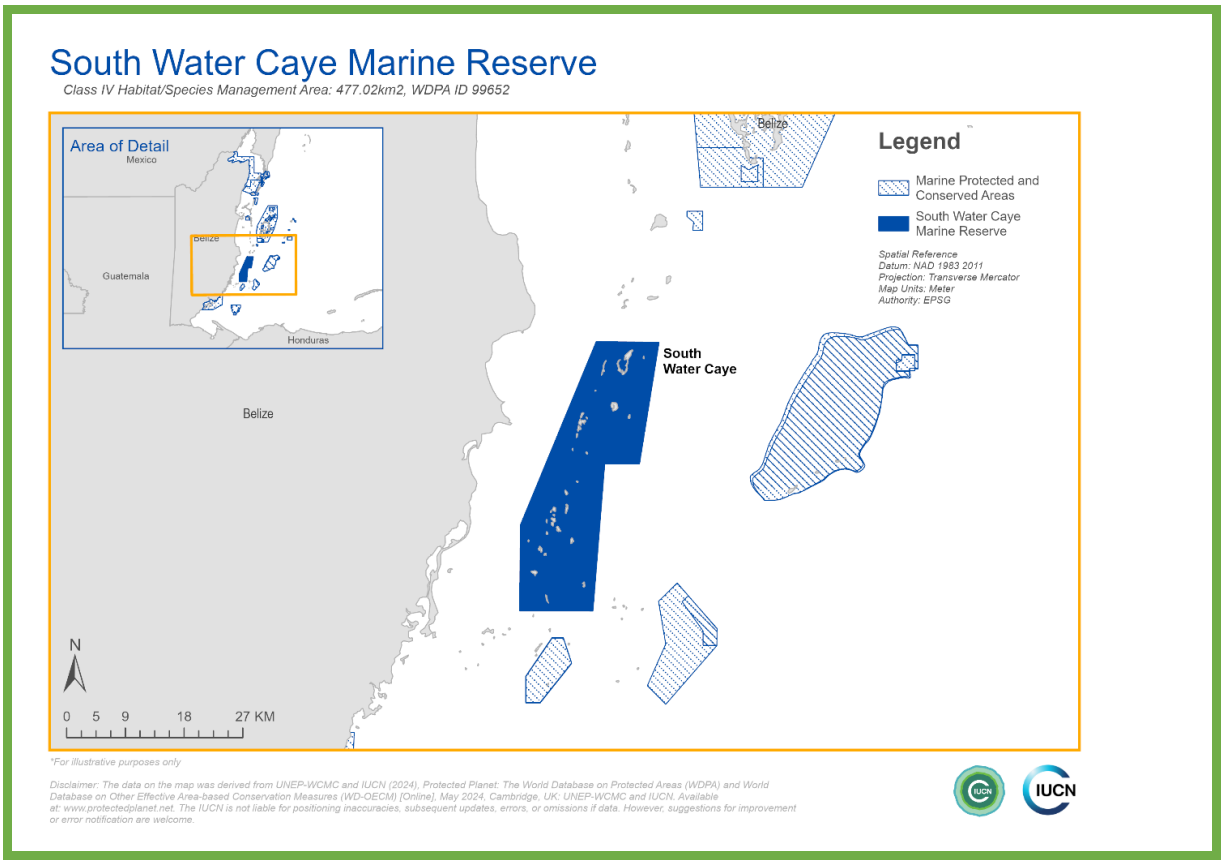
4.10.1 Key facts

Table 21. Site description, South Water Caye Marine Reserve

WDPA ID	**99652**
Reported area (km²)	**477.02**
IUCN management category	**IV Habitat/Species Management Area**
Status:	**Designated**
Type of designation	**National**
Status year	**1996**
Governance type	**Governance by government**
Management authority	**Fisheries department**
Co-Management	**N/A**
Management plan (dates)	**2019 - 2023**
Management Effectiveness Evaluations	**MEE (2023)** **METT 2013, 2010** **Advanced METT 2019**

4.10.2 Site Summary

Figure 12. Map, South Water Caye Marine Reserve



4.10.3 Brief overview

Description of the key ecosystems and species that the area aims to protect. Any cultural, historical, or indigenous values associated with the area

The South Water Caye Marine Reserve (SWCMR), nestled within the turquoise waters of the Caribbean Sea, is a haven for biodiversity, conservation, and sustainable resource management. Covering approximately 47,700 hectares (about 477 square km), SWCMR is a vital component of the Belize Barrier Reef Reserve System World Heritage Site.

Geography and location: SWCMR lies on the inner side of the Belize Barrier Reef, the second-largest barrier reef system globally, stretching along the coast of Belize. Its coordinates are approximately 16°49’09.29"N, 88°05’00.68"W. The reserve encompasses a mosaic of habitats, including coral reefs, seagrass beds, mangrove cayes, and deep channels.

Ecological richness:
Coral Reefs: SWCMR boasts vibrant coral reefs teeming with life. These reefs provide critical habitat for countless species, including colorful fish, crustaceans, and sponges.
Seagrass Meadows: Beneath the surface, seagrass meadows harbor endangered species like the West Indian manatee (Trichechus manatus). These seagrass beds serve as nurseries for juvenile fish.
Mangrove Cayes: The reserve’s mangrove cayes—such as Pelican Cayes and Twin Cayes—are ecological powerhouses. Their tangled roots protect shorelines, provide nesting sites for birds, and serve as breeding grounds for marine organisms.
Marine Turtles: SWCMR hosts nesting sites for loggerhead turtles, hawksbill turtles, and green turtles. These ancient reptiles return to the beaches to lay their eggs, perpetuating their species.

Biodiversity highlights: SWCMR supports over 500 fish species, including the iconic queen triggerfish, parrotfish, and groupers. Rare and elusive creatures like the spotted eagle ray and the nurse shark glide through its waters. The reserve’s birdlife includes brown pelicans, frigatebirds, and mangrove warblers. Beneath the waves, delicate sea fans, brain corals, and elkhorn corals create a mesmerizing underwater landscape.

Conservation and management: In 1996, the Belizean government established SWCMR under the Fisheries Act. The Belize Fisheries Department oversees its management, enforcing regulations to prevent overfishing, habitat destruction, and pollution. Rangers stationed on Twin Cayes patrol the reserve, ensuring compliance with rules. SWCMR is a living laboratory for scientific research, monitoring climate change impacts, coral health, and biodiversity trends.

Access, use and visitation: Traditional fishing communities rely on SWCMR for livelihoods. Sustainable practices, such as conch and lobster harvesting, are carefully managed. Eco-tourism thrives here. Snorkelers and divers explore the underwater wonders, guided by local experts who emphasize responsible interactions with marine life.

Threats and challenges: SWCMR faces threats from climate change (including coral bleaching), coastal development, and invasive species.

4.10.4 Values

The ‘natural, ecosystem, cultural outcomes’ NECO table for SWCMR currently shows that adequate monitoring for major site values (Criterion 3.7) is not yet in place. The NECO and

the IBEX below show no thresholds set and only minimal success documented for major cultural values. This means that the site has yet to set thresholds for success fully, adequately measure trends and assess status, and therefore, cannot systematically determine conservation outcomes (Criteria 4.1, 4.2, 4.3).

This does not mean that conservation impact is not being achieved; it is simply that the site management has yet to fully record or demonstrate these outcomes as a result of their management effort.

Table 22. NECO, South Water Caye Marine Reserve

	Major values	Thresholds	Conditions	Trends
Natural values	Queen conch (*Aliger gigas*)	50 individuals/hectare	153 Individuals	3.06 folds increase
	Spiny lobster (*Panulirus argus*)	76.2 Individuals	90 Individuals	13 individual increase (18% Increase)
	Coral reef	very good (4.3-5.0),good (3.5-4.2),fair (2.7-3.4),poor (1.9-2.6), critical (1.0-1.8)	3	Fair condition
Ecosystem Services	Fishing and Tourism	NA	NA	NA
Cultural Values	Dugu (Garifuna rituals) and traditional fishing	NA	NA	NA
	Tourism	NA	3609	64% increase compared to last year

Recommended improvements to the NECO table that would comply with the IUCN Green List Standard include:

- Clearly define and record thresholds, conditions, and trends for ecosystem services values to ensure comprehensive tracking.
- Specify and routinely measure performance indicators for ecosystem services, ensuring ongoing assessment of their trends and conditions.
- Further explore cultural values
- Improve monitoring protocols to prioritize and address key aspects related to the condition and status of the NECO values
- Methodically update trend reports and adapt thresholds to accommodate changing environmental and cultural dynamics.

4.10.5 Summary of IUCN Green List self-assessment IBEX

IBEX scores by component

Overall Score	Good governance	Sound design and planning	Effective management	Conservation outcomes	
60%	**88%**	**87%**	**57%**	**8%**	**Near alignment**

IBEX scores by criterion

Good governance			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
1.1 Guarantee legitimacy and voice	84%	There are clearly defined, legitimate equitable and functional governance arrangements, in which the interests of civil society, all substantive and legitimate rights-holders and stakeholders are fairly represented and addressed. Governance mechanisms promote gender equity and diversity. There is mutual respect for the governance arrangements in place and for the management authority among key actors. Processes are in place to redress any identified legacy issues relating to site establishment, designation(s) or past management decisions.	There is need of rights-holders and community's engagement. It is important to increase consultation processes
1.2 Achieve transparency and accountability	90%	Governance structures are clear and well-communicated. Management provisions are documented and available and regularly revised. Membership of key decision-making bodies is public and there are accessible means to communicate on issues of concern. Decision-making	There is a need of sharing information more online and or on public platform for an even better transparency.

		processes are transparent, and their results well-documented and published. There is an active process for addressing disputes and grievances related to governance and management., with response mechanisms in place.	
1.3 Enable governance vitality and capacity to respond adaptatively	94%	Planning and management draw on the best available knowledge of the social and ecological context of the site, using an adaptive management framework that anticipates, learns from and responds to change in its decision-making. Planning and management processes draw on multiple knowledge sources (scientific, experiential, local and traditional knowledge) as well as appropriate technology. The site has, where relevant, considered historical changes and future projections in social, ecological and climate conditions. Adaptations to projected climate change impacts are factored into governance and management structures.	Increased working collaboration with local communities to discuss decision-making plans. Be willing to do compromises with stakeholders in various activities. Finally, there is a need to work more with local communities and hold, if possible, regular quarterly meetings to discuss past trends, current changes to anticipate future changes.
Sound design and planning			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
2.1 Identify and understand major site values	100%	There is a clear and defined area-based conservation measure in place for which the major values for conservation of nature with associated ecosystem services, and cultural values are identified and understood. The site has a current and functioning management plan (or equivalent) that is regularly revised and updated.	Maintain or increase the understanding of the major site values and their trends

2.2 Design for long-term conservation of major site values	100%	The site's designation, scale, connectivity and characteristics are well-aligned with conservation goals and objectives. Major site values are fully identified and understood, and design and planning can help address their long-term conservation needs. The design of the site in its landscape/seascape context supports long-term maintenance of the major site values.	Maintain or increase the integration of the long-term conservation efforts into the management plan
2.3. Understand threats and challenges to major site values	61%	There is good understanding of most of the known threats and challenges to major site values, including climate change impacts. Most threats and challenges are well described with a good overview of the context and situation.	Implement continued monitoring as well as public engagement to better understand threats to major natural values, ecosystem services and cultural values.
2.4 Understand social and economic context	86%	There is a good understanding of the social and economic context, and this is reflected in most management goals and objectives.	Develop climate adaptation plan and increase engagement with stakeholders to better understand impacts on the region's economy and social balances.
Effective management			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
3.1 Develop and implement a long-term management strategy	55%	There is a form of management strategy with some goals and objectives for the conservation of at least a few of the major site values, that has partial relevance to the ecological, social and economic context of the site. However, management approaches are limited in their scope to promote fair and functioning working conditions. Implementation may lack adequate resourcing and material.	Hire more staff, increase the available resources and build better infrastructure.

		A lack of finance may prevent effective management operations.	
3.2 Manage ecological condition	67%	There is planning and capacity in place to manage and maintain ecological attributes and processes of major site values, but more comprehensive approaches may be required, and/or a more comprehensive suite of major site values should be considered.	Hire more staff and make resources available to safeguard the site's natural values
3.3 Manage within social and economic context of the area	50%	There is some capacity and mandate in place for engaging rights-holders and stakeholders, and for incorporating their voices into management planning and operations, but not yet within the full social and economic context of the site.	Set up a good stakeholders' engagement strategy as well as a better system for collecting park's fees. Also, focus on opportunities to enhance social and economic benefits in new management plan
3.4 Manage threats	33%	There is some intent, but limited capacity, to respond to threats, if identified, to recognized major site values.	Hire more staff and provide more resources to effectively respond to threats.
3.5 Effectively and fairly enforce laws and regulations	73%	Laws, regulations and restrictions are applied to most aspects of site management. There is adequate organization of compliance operations and some coordination on enforcement. Information on regulations and their implications is mostly available to local stakeholders and the public.	Provide more trainings to enhance the enforcement.
3.6 Manage access, resources use and visitation	82%	When permitted, activities within the area that involve direct access to resources are compatible with and support the achievement of the area's conservation goals and objectives, meet the needs of users, and are properly described and regulated. When permitted, tourism and visitor management are compatible with and support	Improve the infrastructure. In addition, conduct more research on sustainable tourism to identify the impact of tourism in the area while facilitating the application of environmental and safety standards.

		the achievement of the area's conservation goals and objectives.	
3.7 Measure success	40%	All major site values are assessed through a partial set of monitoring, evaluation and learning programmes, that begins to objectively determine successful conservation.	Conduct more research on sustainable tourism to be able to set performance indicators
Successful conservation outcomes			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
4.1 Demonstrate conservation of major natural values	0%	There are no discernible conservation outcomes for any major natural values.	Determine a threshold value
4.2 Demonstrate conservation of major associated ecosystem services	25%	The site can show limited success from conservation efforts for some major ecosystem services.	Develop a performance indicator for ecosystem services.
4.3 Demonstrate conservation of cultural values	0%	There are no discernible conservation outcomes for any major cultural values.	Develop a performance indicator for ecosystem services for cultural values.

4.10.6 Summary and recommendations

Summary of the key achievements and identification of areas where the protected area does not meet Green List standard.

Governance

According to the self-assessment exercise (IBEX) and the NPAS MEE 2023, the South Water Caye Marine Reserve (SWCMR) indicated to emphasise a good governance, with clear and inclusive structures that involve various stakeholders. The interests of civil society, rights-holders, and stakeholders are well-represented and addressed.

However, while the governance structures are transparent and decision-making processes seem to be well-documented, there is a need for more effective mechanisms for conflict resolution and grievance redressal to enhance governance vitality (Criteria 1.1, 1.2). Additionally, deeper engagement and regular consultation with local communities and stakeholders/rightsholders are required to ensure their voices influence decision-making and management practices (Criteria 1.3).

During the group visit (IUCN, Belize authorities, JNCC and co-site managers) in September 2023, a dialogue with the local fishers indicated that there was yet an established community representative group for SWCMR. Addressing this gap can be prioritized to strengthen the governance framework in place.

Design and Planning

SWCMR has a comprehensive Management Plan (2019-2023) that effectively identifies and understands the major conservation values, threats, and socio-economic contexts. The Management Plan needs to be updated soon. The site's design supports long-term conservation goals, with well-aligned designation, scale, and connectivity to maintain ecological integrity and biodiversity.

According to NPAS MEE 2023, while the site has clearly defined objectives that are considered adequate for planning and management, 2 of 5 are being achieved effectively (use SWCMR as an effective tool in promoting an understanding of the unique marine environment; provide opportunities for recreation, interpretation, education, and appreciation for all visitors), 2 of 5 are being achieved to some extent (develop and use sound data to inform management decisions; engage stakeholders towards good stewardship of the marine environment for long term sustainable benefit), and 1 of 5 is being achieved to a limited extent (effectively manage SWCMR's natural resources).

The NPAS MEE 2023 highlighted the need for regular updates to baseline inventories and maps on the physical and biotic environment. Ensuring that data is readily accessible for management purposes is crucial for effective planning and adaptive management (Criteria 2.3, 2.4).

While the social and economic context IBEX criterion score is 86%, which falls under full Green List alignment, an additional assessment and increasing engagement with stakeholders would help better understand the site's impact on the local economy and social balances.

Additionally, in order to better understand threats to major natural values, ecosystem services and cultural values and to reach full Green List alignment, continued monitoring should be coupled with the development of a climate adaptation plan and more public engagement.

Management

Indicated in the IBEX, while SWCMR employs adaptive management strategies, incorporating scientific, local, and traditional knowledge into planning and management, the implementation of these strategies is hampered by insufficient financial and human resources (Criteria 3.1). There is a need to increase the number of staff, improve infrastructure (Criteria 3.2), and secure stable and diversified financial resources to effectively carry out conservation activities (Criteria 3.3). Additionally, the available documentation shows that SWCMR seems to lack a comprehensive threat management implementation to systematically address illegal fishing, climate change impacts, and other anthropogenic pressures (Criteria 3.4).

Conservation outcomes

SWCMR has made significant strides in monitoring and research, particularly in assessing coral reef health and key species like Queen conch and Spiny lobster. However, the reserve struggles to demonstrate clear conservation outcomes due to the absence of defined thresholds for success and systematic documentation of impacts. Limited data and performance indicators for ecosystem services (Criteria 4.2) and cultural values (Criteria 4.3) further hinder the ability to measure and report on conservation success.

There is a need to establish a robust monitoring and evaluation framework (linked to Criteria 3.7), set clear performance indicators, and regularly update these based on monitoring results.

4.10.7 Key recommendations for the IUCN Green List process

Based on suggestions made by the managers for how these could be addressed. Discussion on additional resources or changes needed to meet Green List standard.

This section draws on recommendations from managers, an in-depth analysis of the self-assessment exercise (Green List IBEX), and the existing management plan. It identifies the needs of SWCMR and the areas that need enhancement to align with the rigorous criteria established by the IUCN Green List. Key areas include:

Ensure good governance

- Establish regular forums for community consultation to ensure that the voices of local communities and stakeholders are heard and incorporated into decision-making processes. This aligns with Criteria 1.1, which emphasizes legitimacy and voice.
- Develop and implement effective mechanisms for conflict resolution and grievance redressal to address any disputes that arise, ensuring that all stakeholders have a platform to express their concerns and seek resolution. This supports Criteria 1.2, which focuses on achieving transparency and accountability.
- Increase engagement with local communities by forming a representative group, ensuring that governance mechanisms promote gender equity and diversity. This will strengthen Criteria 1.3, which aims to enable governance vitality and capacity to respond adaptively.

During the group visit to SWCMR in September 2023, several dialogues were conducted with local stakeholders, including local scientific research representatives and a group of fishers. It was noted that addressing the gap of missing representatives of communities should be prioritized to strengthen the governance framework in place (Criteria 1.1, 1.2, 1.3).

It would ensure legitimate, transparent, and inclusive decision-making processes, enhancing the overall governance structure of SWCMR.

Sound design and planning

- Conduct a systematic threat assessment to identify and understand major threats, including climate change impacts
- Design effective conservation strategies based on the threat assessment
- Implement continued monitoring to better understand threats to natural values, ecosystem services, and cultural values
- Develop a climate adaptation plan to anticipate and respond to changes in social, ecological, and climate conditions
- Increase public engagement to support conservation efforts and adaptation strategies

Effective management

- Secure stable and diversified financial resources to ensure that conservation activities can be effectively carried out. This supports Criteria 3.1, which focuses on developing and implementing a long-term management strategy.
- Hire additional staff and enhance training programs to build capacity for managing ecological conditions and responding to threats. This aligns with Criteria 3.2 and 3.3, which emphasize managing ecological conditions and integrating social and economic contexts.
- Develop a comprehensive threat management plan to systematically address illegal fishing, climate change impacts, and other anthropogenic pressures. This will enhance Criteria 3.4, which focuses on managing threats.

NPAS MEE 2023 indicated a pressing need for improved patrolling and enforcement to address illegal fishing and other threats. Additionally, more comprehensive monitoring of ecological conditions is required to support adaptive management (Criteria 3.1, 3.2, 3.3, 3.4).

Conservation Outcomes

- Set and monitor clear performance indicators for natural values, ecosystem services, and cultural values. This will help demonstrate conservation success and aligns with Criteria 4.1, 4.2, and 4.3, which focus on demonstrating conservation outcomes.
- Regularly publish monitoring results and conservation status reports to maintain transparency and inform stakeholders about the progress and impact of conservation efforts. This supports the overall objective of maintaining a robust monitoring and evaluation framework as emphasized in Criteria 3.7.

4.10.8 Additional resources (links)

- Management documents: Management Plan (2019-2023)
- Reports: NPAS MEE 2023 for SWCMR
- Legal documents: Fisheries Order, Forests Order and their Amendments
- Websites: Belize Fisheries Department, UNESCO World Heritage Sites

4.11 Swallow Caye Wildlife Sanctuary

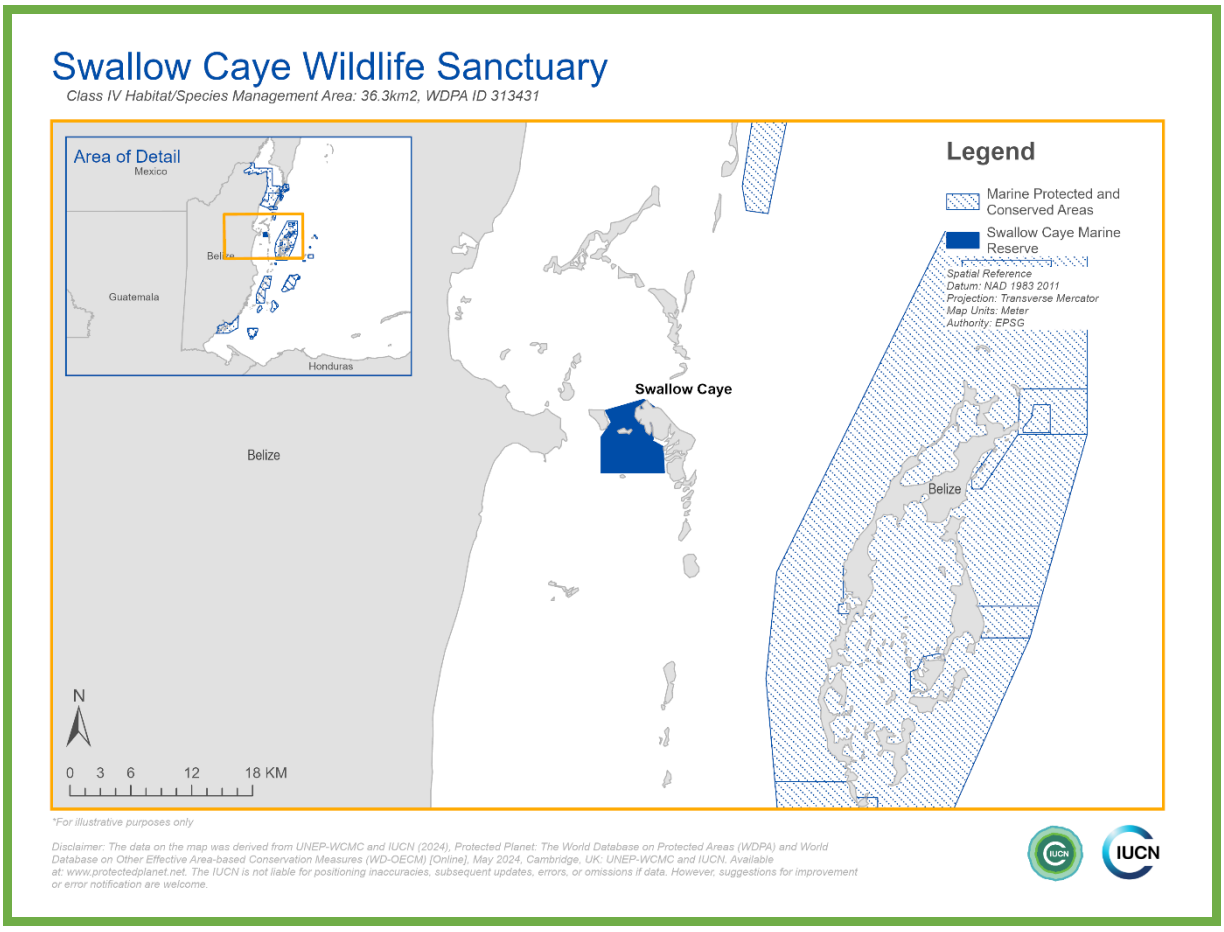
4.11.1 Key facts

Table 23. Site description, Swallow Caye Wildlife Sanctuary

WDPA Id	**313431**
Reported area (km^2)	**36.3**
IUCN management category	**IV Habitat/Species Management Area**
Status: designated	**Designated**
Type of designation	**National**
Status year	**2002**
Governance type	**Governance by local communities**
Management authority	**Forest Department**
Co-Management	**Friends of Swallow Caye (FOSC)**
Management plan (dates)	**To be filled 2011-2013?**
Management Effectiveness Evaluations	**MEE (2023)**

4.11.2 Site Summary

Figure 13. Map, Swallow Caye Wildlife Sanctuary



4.11.3 Brief overview

Description of the key ecosystems and species that the area aims to protect. Any cultural, historical, or indigenous values associated with the area

Geography and location: The Swallow Caye Wildlife Sanctuary (SCWS) is situated just a few miles off the coast of Belize City. It encompasses nearly 9,000 acres (approximately 36 km²) and includes parts of several uninhabited islands. The main island within the sanctuary is Swallow Caye itself.

Ecological richness: SCWS is a tourism destination to view manatees and likewise a historical destination; the Drowned Cayes area was known in early colonial history as a safe harbour for buccaneers; it is famous for a concentration of manatees and its diversity of waterways facilitated the transshipment of sugar in barges. This led to a successful exportation for the sugar industry, a mainstay of Belize's agricultural sector; the Drowned Cayes area is a major part of the food bank for Belize City, from which numerous fisher folk get a livelihood to supply the population of the city with fresh seafood. It is worth highlighting that SCWS is a designated hurricane shelter by NEMO in the event of hurricanes.

Biodiversity highlights: The sanctuary's shallow waters are covered by extensive seagrass beds. These seagrass beds serve as a crucial feeding ground for the West Indian manatee (*Trichechus manatus*), a threatened marine mammal native to Belize. Manatees are herbivores and have few natural predators, but they are vulnerable to boat propellers. They are currently listed as vulnerable with a decreasing population on the IUCN Red List. To protect these majestic and gentle creatures, strict regulations govern boating within the sanctuary. Watercraft must cut their engines and be manually poled once inside. While swimming with or touching the manatees is prohibited, visitors can easily spot them as they surface every 15 minutes to breathe.

Conservation management: Beyond its ecological importance, the sanctuary holds cultural and historical value. Indigenous communities have long interacted with the coastal ecosystems, relying on the rich biodiversity for sustenance and cultural practices. The sanctuary provides a glimpse into Belize's natural heritage and the traditional ways of coastal communities.

Access, use and visitation: The sanctuary supports a wide range of flora and fauna beyond manatees. Numerous bird species, fish, and other marine life thrive within its boundaries. Visitors can appreciate the pristine environment while adhering to rules that protect the manatees. Filming and photography are encouraged to capture the experience with these fascinating creatures.

Threats and challenges: Despite the sanctuary's importance and protections, challenges remain. The vulnerability of manatees to boat propellers highlights the need for continued strict regulations and awareness among visitors. Sustainable tourism practices are essential to ensure the sanctuary's preservation. Ongoing efforts to balance human activity with conservation goals offer hope for the future of SCWS and its inhabitants.

4.11.4 Values

The 'natural, ecosystem, cultural outcomes' NECO table for SCWS currently shows that adequate monitoring for major site values (Criterion 3.7) is in place. The NECO and the IBEX below show thresholds set and success documented for major cultural values. This means that the site has set thresholds for success fully, adequately measure trends and assess status, and therefore, can systematically determine conservation outcomes (Criteria 4.1, 4.2, 4.3).

Table 24. NECO, Swallow Caye Wildlife Sanctuary

	Major values	Thresholds	Conditions	Trends
Natural values	Manatee	- Daily sighting: 8 manatees minimum; maximum 15 manatees; 4 calfs - watercraft and on weather conditions.	- Daily sighting minimum 6 manatees, maximum 10 manatee, 2 -3 calfs; - some days better than others depending on dredging/siltation and on speeding.	he population is moving; but it is estimated that up to 100 manatees may be at SCWS at some times. Sightings increase by 2 additional manatees daily
	Mangrove	Good until hurricanes Earl & Lisa	denuding of leaves, broken trees & branches from 2 hurricanes;	Mangroves repopulate themselves and recover from storm damage to healthy forest again;
	Sea grass	Good until Stake bank Development then some stress showing south of Swallow Caye;	siltation between Swallow Caye & Stake Bank	That water quality returns to its crystalline state so that seagrasses may regenerate fully
Ecosystem Services	Wind & wave energy control mangroves blue carbon services, natural buffer for Belize City during hurricanes	2000 acres within Swallow Caye wildlife sanctuary of living mangrove	1500 acres, within Swallow Caye Wildlife sanctuary of mangroves	Generally, increase of 500 acres
	Food production & energy cycles; fish stock nursery in mangrove roots, and seagrasses; manatees are key to energy cycle as primary consumers	preferable the habitat remains intact	SCWS habitat and safe corridors for manatees in & out of SCWS and Belize City	Drop in manatee losses caused by watercraft collision;
	Mangroves & seagrasses trapping of sediments & filtration	Mangrove forest returns to pre-hurricanes Earl and Lisa condition;	Mature mangrove stands and seagrass savannas are mature and healthy;	Mangrove and seagrass density is as normal;
Cultural Values	Tourism destination; Historical value; provision of see foods.	25000 tourists	Diversity of tourism, education, and research activities at SCWS	Manatee population and fish stocks maintain or increase

Recommended improvements to the NECO table that would comply with the IUCN Green List Standard include:

- Further explore cultural values
- Improve monitoring protocols to prioritize and address key aspects related to the condition and status of the NECO values
- Methodically update trend reports and adapt thresholds to accommodate changing environmental and cultural dynamics.

4.11.5 Summary of IUCN Green List self-assessment IBEX

IBEX scores by component

Overall Score	Good governance	Sound design and planning	Effective management	Conservation outcomes	
72%	**90%**	**48%**	**74%**	**75%**	**Near alignment**

IBEX scores by criterion

Good governance			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
1.1 Guarantee legitimacy and voice	93%	There are clearly defined, legitimate equitable and functional governance arrangements, in which the interests of civil society, all substantive and legitimate rights-holders and stakeholders are fairly represented and addressed. Governance mechanisms promote gender equity and diversity. There is mutual respect for the governance arrangements in place and for the management authority among key actors. Processes are in place to redress any identified legacy issues relating to site establishment, designation(s) or past management decisions.	Expand stakeholder engagement initiatives to ensure more inclusive conservation efforts and enhance communication strategies
1.2 Achieve transparency and accountability	80%	Governance structures are communicated, and management provisions are documented and available. Membership of key decision-making bodies is known. There are some means to communicate on issues of concern. Decision-making	Develop and clearly document formal mechanisms for community stakeholders to express grievances or disputes related to governance and management, enhancing accountability and responsiveness.

		processes are generally transparent, and their results published. Processes for addressing disputes and grievances related to governance and management exist but could be more accessible regarding publishing and language with clear response mechanisms.	
1.3 Enable governance vitality and capacity to respond adaptatively	100%	Planning and management draw on the best available knowledge of the social and ecological context of the site, using an adaptive management framework that anticipates, learns from and responds to change in its decision-making. Planning and management processes draw on multiple knowledge sources (scientific, experiential, local and traditional knowledge) as well as appropriate technology. The site has, where relevant, considered historical changes and future projections in social, ecological and climate conditions. Adaptations to projected climate change impacts are factored into governance and management structures.	Establish an adaptive management framework that uses data from new monitoring and evaluation systems to dynamically adjust management strategies.
Sound design and planning			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
2.1 Identify and understand major site values	90%	There is a clear and defined area-based conservation measure in place for which the major values for conservation of nature with associated ecosystem services, and cultural values are identified and understood. The site has a current and functioning management plan (or equivalent)	Review and update previous version of MP.

		that is regularly revised and updated.	
2.2 Design for long-term conservation of major site values	100%	The site's designation, scale, connectivity, and characteristics are well-aligned with conservation goals and objectives. Major site values are fully identified and understood, and design and planning can help address their long-term conservation needs. The design of the site in its landscape/seascape context supports long-term maintenance of the major site values.	Maintain good practices to support the design of long-term conservation goals
2.3. Understand threats and challenges to major site values	0%	Threats are not understood for any major site values.	There is a real need to conduct assessment to determine threats to major natural values, ecosystem services and cultural values, and identify appropriate actions.
2.4 Understand social and economic context	0%	There is no social or economic context presented in relation to the site or any management goals or objectives, where they exist.	Conduct assessment to determine site impact on local economy and social balances of the region.
Effective management			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
3.1 Develop and implement a long-term management strategy	56%	There is a form of management strategy with some goals and objectives for the conservation of at least a few of the major site values, that has partial relevance to the ecological, social and economic context of the site. However, management approaches are limited in their scope to promote fair and functioning working conditions. Implementation may lack adequate resourcing and material. A lack of finance may prevent effective management operations.	Technical and operational capacity needs to be strengthened to implement activities as described in the management plan. Infrastructure needs to be built to conduct activities safely and efficiently. Increase the number of staff to implement activities safely and efficiently. Secure a stable, diversified financial base and develop a comprehensive financial sustainability strategy.

3.2 Manage ecological condition	67%	There is planning and capacity in place to manage and maintain ecological attributes and processes of major site values, but more comprehensive approaches may be required, and/or a more comprehensive suite of major site values should be considered.	Identify and implement strategies and activities needed to protect ecological features and processes.
3.3 Manage within social and economic context of the area	100%	There is clear capacity and mandate in place for engaging rights-holders and stakeholders. They are well incorporated into management planning and operations, ensuring that management is aligned with the social and economic context of the site.	NA
3.4 Manage threats	33%	There is some intent, but limited capacity, to respond to threats, if identified, to recognized major site values.	Design and implement a work program with activities that effectively respond to the main threats to natural and cultural values as well as the site's goals and objectives.
3.5 Effectively and fairly enforce laws and regulations	75%	Laws, regulations, and restrictions are applied to most aspects of site management. There is adequate organization of compliance operations and some coordination on enforcement. Information on regulations and their implications is mostly available to local stakeholders and the public.	The site needs to increase the number of rangers to conduct effective surveillance throughout the site. Rangers need to be sufficiently equipped and trained to conduct safe and effective surveillance. SOP needs to clearly outline the Rangers operational mandates, rules of engagement, compliance mechanisms, code of conduct and (if any) enforcement powers.
3.6 Manage access, resources use and visitation	86%	When permitted, activities within the area that involve direct access to resources are compatible with and support the achievement of the area's conservation goals and	Improve description of types and levels of permitted activities and its accessibility to the public.

		objectives, meet the needs of users, and are properly described and regulated. When permitted, tourism and visitor management are compatible with and support the achievement of the area's conservation goals and objectives.	Work on permits, access control, enforcement and education strategies to minimise harm to major site values coming from use and access to natural resources.
3.7 Measure success	100%	All major site values are assessed through a robust set of monitoring, evaluation and learning programmes. Objectively determined thresholds are set for performance measures for each of these major site values to help determine successful conservation outcomes.	NA
Successful conservation outcomes			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
4.1 Demonstrate conservation of major natural values	100%	The site can demonstrate success through conservation efforts for the majority of major natural values.	NA
4.2 Demonstrate conservation of major associated ecosystem services	25%	The site can show limited success from conservation efforts for some major ecosystem services.	Document all successful outcomes of the associated ecosystem services
4.3 Demonstrate conservation of cultural values	100%	The area is meeting or exceeding the performance thresholds for successful conservation of all major cultural values.	NA

4.11.6 Summary and recommendations

Summary of the key achievements and identification of areas where the protected area does not meet Green List standard.

Governance

Swallow Caye Wildlife Sanctuary (SCWS) is co-managed by the Friends of Swallow Caye (FOSC), a local community group, which emphasizes local involvement and stewardship. This aligns with the Green List's emphasis on community engagement in protected area governance. Swallow Caye Wildlife Sanctuary (SCWS) has indicated strong compliance with the Green List's criteria for good governance. The co-manager had indicated a self-assessment IBEX score of 90% in good governance, reflecting effective engagement with community stakeholders and the inclusion of their interests in management practices.

The existing management plan was developed with significant input from the community, including public consultations and meetings, ensuring transparency and inclusiveness in governance, which supports the Green List's transparency and accountability standards, alignment with Criterion 1.2.

Despite the overall high score in governance, there are gaps in transparency and accountability. The co-site managers scored 80% in this area, indicating a need for improvement, especially in making governance structures more accessible and decisions more transparent to the public.

Design and Planning

SCWS’s previous MP version (no longer current) defined objectives considered adequate for planning and management, focusing on increasing knowledge about SCWS natural heritage, protecting manatees and natural habitats and ecosystems, providing opportunities for Belizean stakeholders, reducing threats, and keeping SCWS functioning as a critical member of the NPAS.

While the major natural values, ecosystem services and cultural values were adequately identified, and the site’s designation and characteristics are well-aligned with conservation goals and objectives, the MP needs to be reviewed and certain elements require special consideration.

Specifically, in order to reach full Green List alignment, a thorough assessment needs to be conducted to determine all threats to major natural values, ecosystem services and cultural values (including climate change) and identify appropriate actions. Additionally, the site’s impact on local economy and social balances of the region needs to be determined.

Effective Management

SCWS´s management plan needs to be updated. This process should describe the objectives, strategies and activities needed for management of the site's natural, cultural and socioeconomic values. Besides that, the site needs to increase the number of staff in order to enforce regulations and implement other activities as described in the management plan.

There is clear capacity and mandate in place for engaging rights-holders and stakeholders. They are well incorporated into management planning and operations, ensuring that management is aligned with the social and economic context of the site. This is a great

achievement considering the importance that SCWS ecosystem services provision have, especially for local communities.

There is some intent, but limited capacity to respond to threats, so it is required to design and implement a work program with activities that effectively respond to the main threats to natural and cultural values as well as the site's goals and objectives.

Even though, laws, regulations and restrictions are applied to most aspects of site management, the site needs to increase the number of rangers to conduct effective surveillance throughout the site. Rangers need to be sufficiently equipped and trained to conduct safe and effective surveillance and Specific Standard Operational Procedures for SCWS would be useful.

Conservation outcomes

Swallow Caye Wildlife Sanctuary (SCWS) has shown significant success in the conservation of its major natural values, particularly the protection of manatee populations and their habitats. The sanctuary has effectively maintained the viability of these critical species, central to the sanctuary's conservation goals, achieving a full alignment in meeting the performance thresholds of natural values.

While SCWS has had successes in specific areas, there is a need for a more systematic and quantifiable demonstration of conservation impacts across all ecosystem services and cultural values. The current measures do not fully capture the broader ecological and socio-economic impacts, essential for comprehensive assessment against the Green List, as indicated by a lower IBEX score in Criterion 4.2.

SCWS has indicated to demonstrate adaptability in management practices in response to environmental changes. This adaptability is crucial for maintaining conservation success under varying environmental conditions and external pressures, such as climate change, with an IBEX score of 75% indicating near alignment with Green List Criterion 4.3.

4.11.7 Key recommendations for the IUCN Green List process

Based on suggestions made by the managers for how these could be addressed. Discussion on additional resources or changes needed to meet Green List standard.

By focusing on the below-mentioned areas of improvement, SCWS can better align its management practices with the IUCN Green List Standard, particularly enhancing governance aspects to ensure sustainability and community support:

Ensure good governance

- Invest in community engagement programs.
- Develop dedicated sanctuary websites and mobile applications for efficient information dissemination.
- Develop and clearly document formal mechanisms for community stakeholders to express grievances or disputes related to governance and management.
- Enhance accountability and responsiveness through these formal mechanisms.
- Increase the frequency and detail of public reports on conservation outcomes.
- Make these reports accessible to all stakeholders and the general public to enhance transparency and engagement
- Establish an adaptive management framework to dynamically adjust management strategies based on new monitoring and evaluation data.
- Focus on climate resilience and responding to environmental changes.

- Address the relatively lower IBEX score for adaptive governance (Criterion 1.3: 77%).

Sound design and planning, and effective management

- Conduct a threat assessment to identify risks posed to natural and cultural values.
- Determine the site's impact on the local economy and social balances of the region.
- Strengthen technical and operational capacity to implement activities as described in the management plan.
- Build necessary infrastructure to support management activities.
- Increase the number of staff to conduct activities safely and efficiently.

Demonstrate conservation outcomes

- Establish a detailed and systematic monitoring plan with clear indicators for all major site values.
- Provide mechanisms for regularly assessing these indicators to track progress towards conservation goals.
- Adopt an integrated management information system to collect, process, and report data on conservation activities' ecological and socio-economic impacts.
- The integrated management information system supports informed decision-making and enables transparent reporting.
- Address gaps identified in the IBEX assessment through improved data collection and reporting mechanisms.

4.11.8 Additional resources (links)

- Management Plan of Swallow Caye Wildlife Sanctuary

4.12 Corozal Bay Wildlife Sanctuary

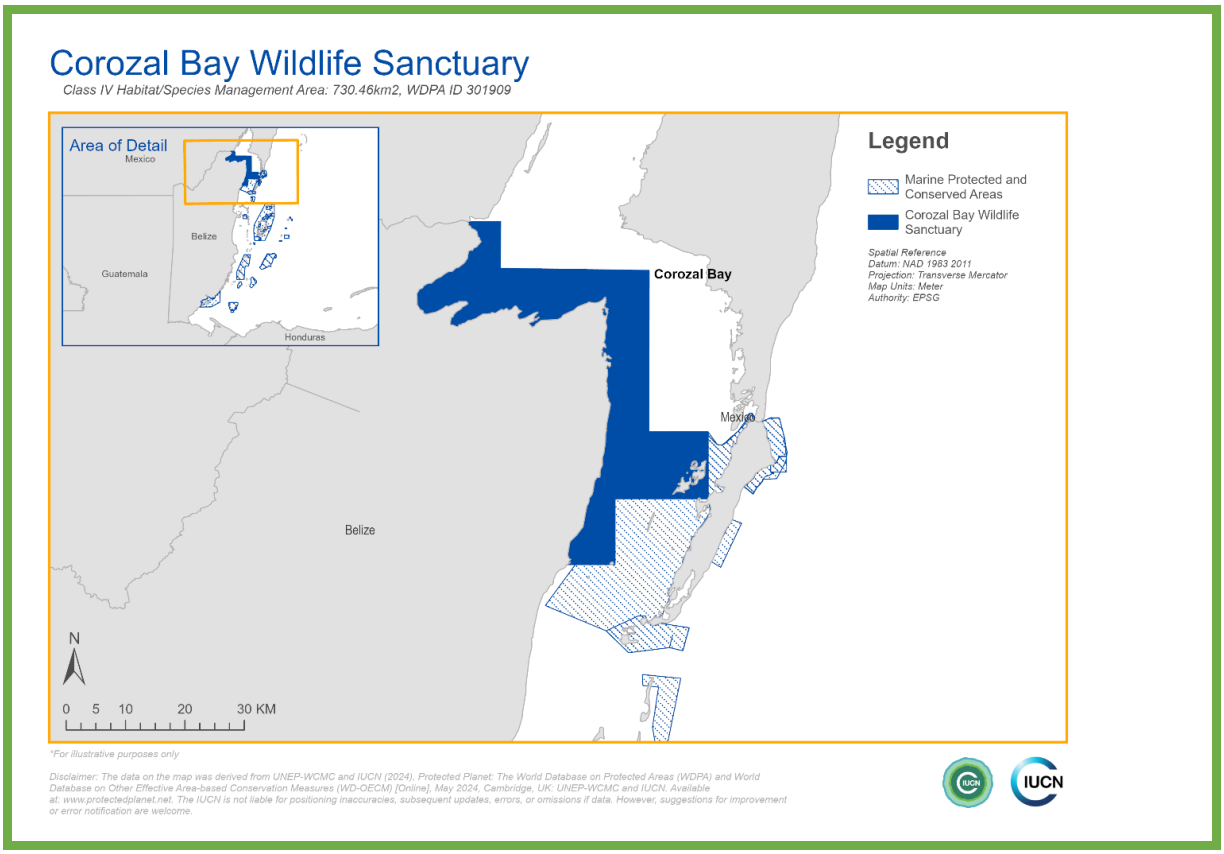
4.12.1 Key facts

Table 25. Site description, Corozal Bay Wildlife Sanctuary

WDPA ID	**301909**
Reported area (km^2)	**730.46**
IUCN management category	**IV Habitat/species management area**
Status: designated	**Designated**
Type of designation	**National**
Status year	**1998**
Governance type	**Shared governance**
Management authority	**Forest Department**
Co-Management	**Sarteneja Alliance for Conservation and Development**
Management plan (dates)	**2020 - 2024**
Management Effectiveness Evaluations	**MEE (2023)**

4.12.2 Site Summary

Figure 14. Map, Corozal Bay Wildlife Sanctuary



4.12.3 Brief overview

Description of the key ecosystems and species that the area aims to protect. Any cultural, historical, or indigenous values associated with the area

Geography and location: The Corozal Bay Wildlife Sanctuary (CBWS) is a key place for protecting nature in the Corozal District of Belize close to the border with Mexico. Established in 1998 with a primary mandate of safeguarding Belize's Antillean manatee (Trichechus manatus manatus) population, the sanctuary spans the serene waters of Corozal Bay, constituting vital habitat crucial for the mating and calving of these gentle marine mammals. Reinforcing its conservation endeavours, CBWS is intricately linked with the *Sanctuario del Manati* in Mexico through bilateral agreements, thereby establishing a transboundary protected area system aimed at bolstering regional biodiversity preservation.

Ecological richness: CBWS emerges as a complex sanctuary with a diversity of life and ecological significance, characterized by its diverse ecosystems and resident species. Flourishing seagrass beds, pivotal to the traditional fishing industry, flourish within its aquatic confines, serving as indispensable nurseries, shelters, and sustenance sources for myriad species while concurrently acting as efficacious filters for nutrients, contaminants, and sediments. Additionally, the sanctuary's mangrove forests punctuate its landscape, exhibiting their innate capacity to safeguard coastlines and harbour diverse organisms, thereby underscoring their pivotal role in coastal protection and habitat provision.

Biodiversity highlights: The estuarine ecosystem entrenched within CBWS functions as a natural sediment basin, intercepting and settling particles prior to their dissemination into the sea, thereby contributing to the maintenance of the adjacent Belize Barrier Reef. Furthermore, the sanctuary serves as a haven for nesting colonies of diverse bird species, augmenting the region's biodiversity tapestry. As a sanctuary for commercial fish species and bull sharks, CBWS assumes a pivotal role in the replenishment of marine populations. Additionally, charismatic inhabitants such as dolphins and crocodiles, alongside the presence of unique stromatolites, further enhance the allure of the sanctuary.

Conservation management: While CBWS predominantly prioritizes biodiversity conservation, it equally embodies cultural and historical significance, though specific indigenous values associated with the locale are not extensively documented. Nevertheless, the sanctuary remains deeply entrenched within Belize's natural heritage, epitomizing a sanctuary not only for wildlife but also for the preservation of cultural and historical legacies.

Access, use and visitation: Despite its significance, CBWS confronts formidable threats stemming from unsustainable fishing practices, pollution, and coastal development, jeopardizing the delicate equilibrium of its ecosystems. In response, the Sarteneja Alliance for Conservation and Development (SACD), a community-oriented NGO, spearheads proactive management and stewardship endeavours within the sanctuary, leveraging vigilant surveillance, robust enforcement measures, and comprehensive research and monitoring initiatives to mitigate these threats and ensure the enduring protection of CBWS and its myriad inhabitants.

Threats and challenges: The ongoing threats from unsustainable fishing practices, pollution, and coastal development pose significant challenges to the delicate balance of CBWS's ecosystems. However, the dedicated efforts of the Sarteneja Alliance for Conservation and Development (SACD) in proactive management, vigilant surveillance, and robust enforcement, alongside comprehensive research and monitoring initiatives, offer hope for the enduring protection and preservation of CBWS and its diverse inhabitants.

4.12.4 Values

The NECO (Natural, Ecosystem Services, Cultural values) table is a tool used to assess various aspects of a protected area, integrating a wide range of indicators. This analysis is particularly important for identifying areas of strength and opportunities for improvement in the management of Corozal Bay Wildlife Sanctuary (CBWS).

Table 26. NECO, Corozal Bay Wildlife Sanctuary

	Major values	Thresholds	Conditions	Trends
Natural values	Fish	Catch for unit effort	NA	NA
	Manatee	Estimate average count of 30 individuals	33	Within range
	Bird	Number of nesting colonies		
Ecosystem Services	Water quality	Acceptable standards (Maximum Permissible Limits (MPLs) for brackish water based on Ecological Criteria for Water Quality: disolved oxygen 5mg/l, Nitrates 0.002 mg/l, Nitrates 0.04mg/l, Ammonium: 0.01mg/l, phosphates 0.002mg/l)	2018 assessment: disolve oxigen 6.5mg/l, Nitrites 0.003 mg/l, Nitrates 0.003mg/l, Ammonium 0.002mg/l, phosphates 0.002mg/l	2018 assessment (dissolved oxygen 1.5mg/l more than the MPL (positive), Nitrites 0.001 mg/l more than MPL (negative), Nitrates 0.037mg/l less the MPL (positive) , Ammonium 0.008mg/l less than the MPL (positive), phosphates 0.000mg/l same as the MPL (positive)
	Mangroves	Level of disturbance (km & %) 2011: 28.25km 19.35%	"2023: 29.80km 20.41%"	"Within range 0.27km disturbed/year 0.09% disturbed/year"
	Sea grass	Sea Grass abundance (ha / % cover) 2015: 1917.3 (2.61%) by Class 50-100% and 2733.8 ha (3.72%) by Class 20-50%	Sea Grass abundance (ha / % cover) 2016: 126.2 (0.17%) by Class 50-100% and 438.6 ha (0.60%) by Class 20-50%	N/A
Cultural Values	Traditional Beach Fishing	10-18 beach traps	15 Traps	within range

Some recommendations to help improve the NECO identification of clear conservation outcomes:

- Compile an action plan that outlines specific steps, timelines, and responsibilities to address the NECO table findings and align with Green List criteria;
- Define further major key natural values of fish and bird and identify the trends and the conditions;
- Ensure that the management plan and NECO table are regularly reviewed and updated to reflect new scientific findings, changes in community needs, economic developments, and cultural insights;
- Establish and maintain rigorous monitoring systems for key indicator species and habitats, using the data to inform adaptive management strategies

4.12.5 Summary of IUCN Green List self-assessment IBEX

IBEX scores by component

Overall Score	Good governance	Sound design and planning	Effective management	Conservation outcomes	
62%	**91%**	**86%**	**73%**	**0%**	**Near alignment**

IBEX scores by criterion

Good governance			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
1.1 Guarantee legitimacy and voice	97%	There are clearly defined, legitimate equitable and functional governance arrangements, in which the interests of civil society, all substantive and legitimate rights-holders and stakeholders are fairly represented and addressed. Governance mechanisms promote gender equity and diversity. There is mutual respect for the governance arrangements in place and for the management authority among key actors. Processes are in place to redress any identified legacy issues relating to site establishment, designation(s) or past management decisions.	Training programs for management and staff can help improve the effectiveness of conservation strategies, addressing the Green List's Governance indicators.
1.2 Achieve transparency and accountability	100%	Governance structures are clear and well-communicated. Management provisions are documented and available and regularly revised. Membership of key decision-making bodies is public and there are accessible means to communicate on issues	Keep all the records and evidence of the transparency and accountability of the decision-making processes.

		of concern. Decision-making processes are transparent, and their results well-documented and published. There is an active process for addressing disputes and grievances related to governance and management., with response mechanisms in place.	
1.3 Enable governance vitality and capacity to respond adaptatively	77%	Planning and management show adaptive capacity and draws on knowledge of the social and ecological context of the site, and a reasonable monitoring and evaluation framework. There is consultation and stakeholder participation in planning and management. There is vertical alignment between national and regional goals and processes and site governance and management. However, more responsiveness to historical and legacy issues, and future projections of change may be required, especially for the impacts of climate change.	Increase efforts for responsiveness to historical issues and future changes. Enhance adaptive management for the CBWS resilience.
Sound design and planning			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
2.1 Identify and understand major site values	100%	There is a clear and defined area-based conservation measure in place for which the major values for conservation of nature with associated ecosystem services, and cultural values are identified and understood. The site has a current and functioning management plan (or equivalent) that is regularly revised and updated.	Maintain efforts of the defining the key priorities values
2.2 Design for long-term conservation of major site values	80%	The site's designation, scale, connectivity and characteristics	Maintain and increase in a longer term the designated

		are well-aligned with conservation goals and objectives. Major site values are fully identified and understood and design and planning can help address their long-term conservation needs. The design of the site in its landscape/seascape context supports long-term maintenance of the major site values.	CBWS values into the conservation planning.
2.3. Understand threats and challenges to major site values	69%	There is good understanding of most of the known threats and challenges to major site values, including climate change impacts. Most threats and challenges are well described with a good overview of the context and situation.	Conduct assessment to better understand threats to cultural values (including climate change impacts) and identify appropriate actions.
2.4 Understand social and economic context	90%	There is a good understanding of the social and economic context, and this is reflected in most management goals and objectives.	Conduct assessment to better understand site impact on social balances of the region.
Effective management			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
3.1 Develop and implement a long-term management strategy	69%	There is an operational management strategy with goals and objectives for the conservation of most major site values, and address most of the ecological, social and economic context of the site. Management approaches contribute to some extent to fair and functioning working conditions. Implementation is mainly supported by adequate resourcing and material and tracked through a work planning system. However, a lack of financial resources may be preventing core management operations.	Increase the number of staff to implement activities safely and efficiently. Improve staff conditions and training strategies. Secure a stable, diversified financial base and develop a comprehensive financial sustainability strategy.

3.2 Manage ecological condition	79%	There is planning and capacity in place to manage and maintain ecological attributes and processes of major site values, but more comprehensive approaches may be required, and/or a more comprehensive suite of major site values should be considered.	Identify and implement strategies and activities needed to protect ecological features and processes.
3.3 Manage within social and economic context of the area	100%	There is clear capacity and mandate in place for engaging rights-holders and stakeholders. They are well incorporated into management planning and operations, ensuring that management is aligned with the social and economic context of the site.	Maintain the capacity to align the CBWS management implementation with the social and economy contexts
3.4 Manage threats	50%	Some threats are identified and being responded to, so that their impact is lessened on some major site values identified, or on the achievement of the site's goals and objectives.	Design and implement a work program with activities that effectively respond to the main threats to natural and cultural values as well as the CBWS goals and objectives.
3.5 Effectively and fairly enforce laws and regulations	88%	Laws, regulations and restrictions are fairly and effectively applied to all aspects of site management. There is adequate organization of compliance operations and coordination on enforcement. Information on regulations and their implications is fully available to local stakeholders and the public.	The site needs to increase the number of rangers for CBWS to conduct effective surveillance throughout the site. Rangers need to be sufficiently equipped and trained to conduct safe and effective surveillance. Laws and regulations regarding the use of the site, needs to be communicated effectively to civil society, stakeholders and rights-holders.
3.6 Manage access, resources use and visitation	81%	When permitted, activities within the area that involve direct access	Improve the site´s services and facilities in order to meet the

		to resources are compatible with and support the achievement of the area's conservation goals and objectives, meet the needs of users, and are properly described and regulated. When permitted, tourism and visitor management are compatible with and support the achievement of the area's conservation goals and objectives.	needs of different audiences and age groups, including disadvantaged people.
3.7 Measure success	40%	All major site values are assessed through a partial set of monitoring, evaluation and learning programmes, that begins to objectively determine successful conservation.	This indicator is related to the NECO determination to set threshold of success and to Component 4 to demonstrate outcomes. Enhance the monitoring system of CBWS.
Successful conservation outcomes			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
4.1 Demonstrate conservation of major natural values	0%	There are no discernible conservation outcomes for any major natural values.	Implement a comprehensive biodiversity monitoring program. This program would involve systematic surveys and regular monitoring of key species and habitats crucial to the sanctuary's conservation goals
4.2 Demonstrate conservation of major associated ecosystem services	0%	There are no discernible conservation outcomes for any major ecosystem services.	Enhance monitoring and implementation strategies that could more effectively translate the CBWS rich biodiversity and ecological functions into quantifiable benefits
4.3 Demonstrate conservation of cultural values	0%	There are no discernible conservation outcomes for any major cultural values	Strengthen community engagement to enhance conservation outcomes related to cultural values and showcase it

4.12.6 Summary and recommendations

Summary of the key achievements and identification of areas where the protected area does not meet Green List standard.

Governance

Based on the self-assessment of Green List IBEX, the Corozal Bay Wildlife Sanctuary (CBWS) seem to exhibit strong governance with clearly defined, legitimate, and equitable arrangements. The management structure tried to promote gender equity and respects rights-holders and stakeholders, ensuring their fair representation in decision-making processes. The mutual respect among key actors contributes to a robust governance framework. This is demonstrated by the score of 97% for the Legitimacy and Voice.

While CBWS shows adaptability in its governance, there is a noted need for increased responsiveness to historical issues and future changes, especially regarding climate change impacts. This area requires further development to fully meet the Green List Standard.

CBWS sets a self-benchmark in transparency and accountability, as evidenced by a fully aligned score of 100%. The management authority was assessed to have established clear, well-communicated governance structures that are accessible to the public. Management provisions are documented, regularly revised, and made available, which enhances the sanctuary's credibility and public trust. The decision-making processes are transparent with their results well-documented and published, providing a clear track of governance actions and responses to public concerns. Additionally, the CBWS has implemented effective mechanisms for addressing disputes and grievances related to governance and management, further strengthening its accountability.

Design and Planning

According to NPAS MEE 2023, while the site has clearly defined objectives that are considered adequate for planning and management, only 1 of 5 is being achieved effectively (ensure adequate knowledge for biodiversity and human resource use management), and 4 of 5 are being achieved to some extent (ensure the effective conservation and sustainable use of CBWS natural resources; contribute towards the health and effective management of the larger Northern Belize Coastal Complex seascape; increase community engagement, awareness, and participation in the conservation of CBWS natural resources; ensure public use is conducted in an environmentally aware and sensitive manner).

Consistent with the IBEX score, the NPAS MEE 2023 found that the CBWS design does not constrain the achievement of management objectives and conservation target goals but could be improved.

Specifically, assessments need to be conducted to better understand threats to cultural values (including climate change) and identify appropriate actions. Additionally, while the social and economic criterion IBEX score is 90%, which falls under full Green List alignment, an extra assessment would help better understand the site's impact on social balances of the region.

Effective Management

CBWS has a current management plan which includes the goals and objectives for management of the natural values and social and economic objectives identified, management strategies and activities to achieve these goals over the long term and an

indication of the activities that are allowed or prohibited in the site and any zoning or temporal/spatial restrictions on access to or use of the site. However, not all activities are being conducted and implemented as described in the Management Plan, basically because there is not enough staff and there are financial constraints that limits capacity to conduct planned management activities.

There is clear capacity and mandate in place for engaging rights-holders and stakeholders. They are well incorporated into management planning and operations, ensuring that management is aligned with the social and economic context of the site. This is a great achievement considering the importance that CBWS ecosystem services have.

Some threats are identified and being responded to, so that their impact is lessened on some major site values identified.

Conservation outcomes

Despite the strong governance as self-assessed on IBEX, Corozal Bay Wildlife Sanctuary faces significant challenges in demonstrating tangible conservation outcomes as per the Green List Standard.

Currently, CBWS does not have discernible conservation outcomes for any major natural values that would need to be verified by EAGL (Criterion 4.1.2), as indicated by an IBEX score of 0%. This stark score highlights a critical area for improvement in the site management effectiveness. Despite the management plan's emphasis on safeguarding Belize’s Antillean manatee population and other significant biodiversity features, the results have not yet met all indicators of the Green List Standard. This gap points to a need for a reassessment of current conservation strategies and the development of more effective measures.

Similar to natural values, CBWS also scores 0% in demonstrating conservation outcomes for major associated ecosystem services. The self-assessment did not showcase positive outcomes yet in place for ecosystem services such as water quality maintenance and habitat provision, underlining the necessity for enhanced monitoring and implementation strategies that could more effectively translate the sanctuary’s rich biodiversity and ecological functions into quantifiable benefits.

4.12.7 Key recommendations for the IUCN Green List process

Based on suggestions made by the managers for how these could be addressed. Discussion on additional resources or changes needed to meet Green List standard.

Building on the insights from the Green List IBEX self-assessment tool (overall score of 62%) and the management plan for Corozal Bay Wildlife Sanctuary (CBWS), the following recommendations are tailored to specifically address the areas identified for improvement and leverage existing strengths.

Ensure good governance

The good scores of IBEX will need the records and evidence to justify the good governance of CBWS. Important to keep all the documentation needed for the Green List process.

Given the medium IBEX score for adaptive governance (Criterion 1.3: 77%), establishing an adaptive management framework is crucial. This framework should use data from the new M&E systems to dynamically adjust management strategies in response to environmental changes, with a particular focus on climate resilience. Other key areas are:

- Provide capacity building on the governance and management strategies to all site staff
- Strengthen governance structures by enhancing stakeholder engagement, transparency, and accountability
- Strengthen community engagement to enhance conservation outcomes related to cultural values.
- Involve local communities in monitoring and management processes to ensure conservation strategies are culturally relevant and supported.

Sound design/planning and effective management

In terms of Design and Planning, the main recommendations consist of assessing threats to cultural values (including climate change), identifying appropriate actions, and determining the site's impact on the social balances of the region, in order to ensure the full understanding of the social context. Other recommendations are:

- Develop and enforce policies that protect natural and cultural resources.
- Include clear zoning regulations, resource use guidelines, and visitor management strategies to align with Green List requirements for management effectiveness and policy enforcement.
- Design and implement a work program with activities that effectively respond to the main threats to natural and cultural values as well as the site's goals and objectives.
- Increase the number of rangers to conduct effective surveillance throughout the site.
- Develop a comprehensive financial sustainability strategy to support long-term staff requirements.
- Communicate laws and regulations regarding the use of the site effectively to civil society, stakeholders, and rights-holders.
- Implement a comprehensive biodiversity monitoring program, including systematic surveys and regular monitoring of key species and habitats.
- Use traditional survey methods and modern technologies such as drone surveillance and satellite imagery to gather accurate and timely data.

Demonstrate outcomes

Given the challenges highlighted by the IBEX assessment, where Corozal Bay Wildlife Sanctuary (CBWS) scored 0% across all criteria in Component 4, it is crucial to focus on establishing measurable and sustainable conservation outcomes.

- Focus on monitoring the health of ecosystems and populations of species like the Antillean manatee and commercially important fish species.
- Enhance data management and analysis capabilities to demonstrate the conservation of ecosystem services, such as water quality and seagrass vitality, in response to Criterion 4.2.
- Establish a centralized data system to integrate and analyze data from multiple sources, providing a comprehensive understanding of ecosystem services.
- Document and preserve cultural practices associated with the sanctuary's natural resources, such as traditional fishing methods.

These recommendations aim to address gaps identified through the IBEX assessment and management plan review, focusing on improving CBWS's operational effectiveness and alignment with the IUCN Green List Standard.

4.12.8 Additional resources (links)

- Management documents: Management Plan 2020-2024
- NPAS MEE 2023

4.13 Caye Caulker Marine Reserve (CCMR)

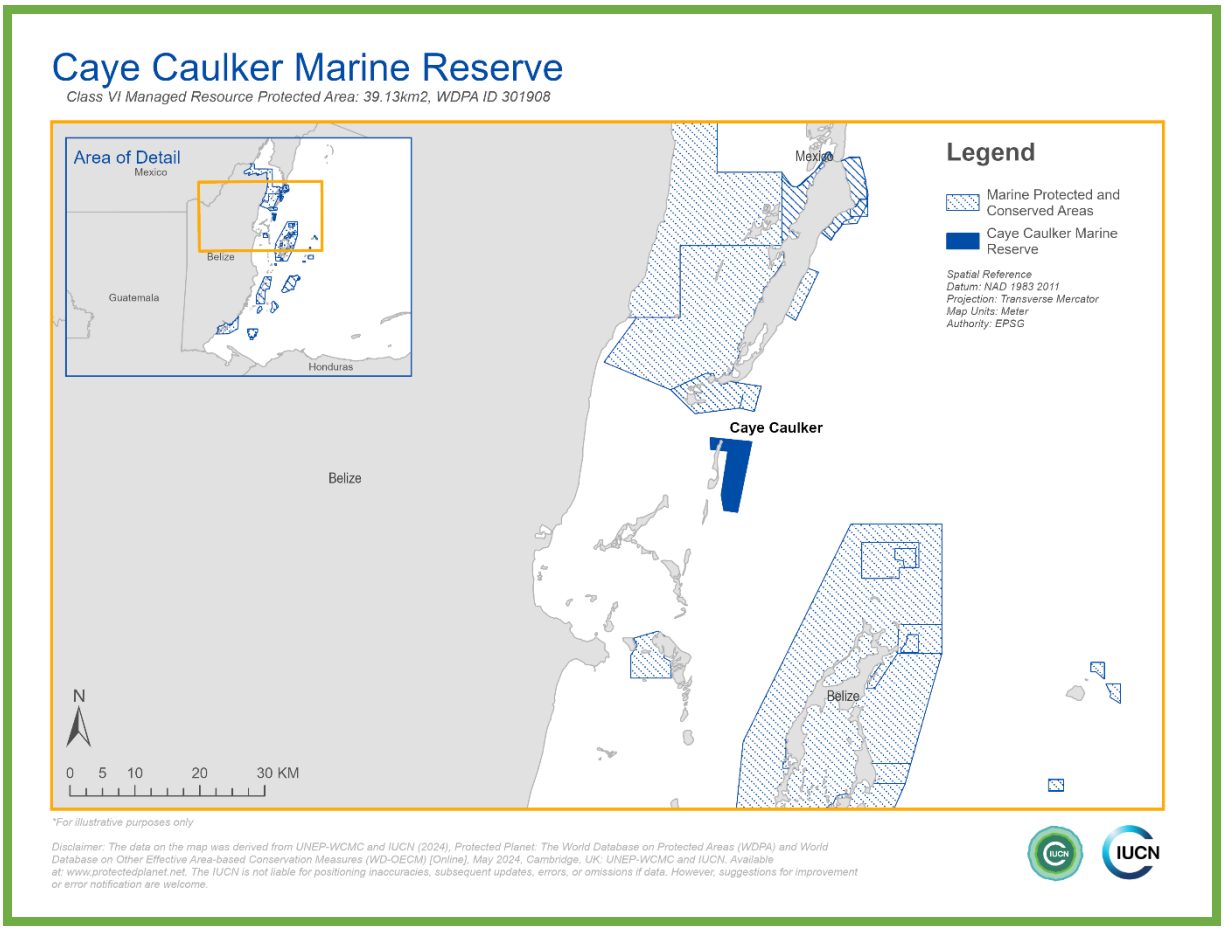
4.13.1 Key facts

Table 27. Site description, Caye Caulker Marine Reserve (CCMR)

WDPA ID	**301908**
Reported area (km^2)	**39.13**
IUCN management category	**VI Protected areas with sustainable use of natural resources**
Status: designated	**Designated**
Type of designation	**National**
Status year	**1998**
Governance type	**Shared governance**
Management authority	**Forest department/Forest and Marine Reserve Association of Caye Caulker**
Co-Management	
Management plan (dates)	**2021 - 2026**
Management Effectiveness Evaluations	**MEE (2023)**

4.13.2 Site Summary

Figure 15. Map, Caye Caulker Marine Reserve (CCMR)



4.13.3 Brief overview

Description of the key ecosystems and species that the area aims to protect. Any cultural, historical, or indigenous values associated with the area

Geography and location: The Caye Caulker Marine and Forest Reserve (CCMFR) was established in April 1998 through two Statutory Instruments (S.I.s) No. 35 of 1998 (M.R.) and No. 28 of 1998 (F.R.) The rules and regulations for the Caye Caulker Marine Reserve (CCMR) were gazetted 10 years after, on the 6th of December 2008 on SI No. 127 of 2008.

Ecological richness: The reserve comprises over 9,000 acres of the Mesoamerican Barrier Reef System which runs parallel to the entire Caye. It encompasses five habitats: mangroves and littoral forests, lagoon marshlands, sea-grass beds, and coral reef.

Biodiversity highlights: The CCMR forms the shape of the number seven, approximately 12,160 acres or 11.1 km in length, with the top portion crossing the Caye's north point and extending into lagoon waters to the west. Having an area slightly over 100 acres, the CCMR is home to a healthy population of saltwater crocodiles and over 100 species of birds, like the rare black catbird. Other attractions include over 170 species of fish and crustaceans including the commercially important spiny lobster and queen conch; a robust and healthy population of Elkhorn and Stag horn corals; and seasonal residence of the West Indian Manatees in the north channel of the CCMR.

Conservation management: Under the Ecosystem-based Management Unit of the Belize Fisheries Department, the Caye Caulker Marine Reserve functions under this statement "To protect and sustain the value of the area for fisheries and tourism; to enhance the economic and social benefits of the area". Most aquatic ecosystems are unavoidably affected by fishery activities that involve a selective removal of part of the natural productivity for human subsistence, economic returns and development; therefore, the CCMR is a management tool in the Ecosystem approach to fishery to mitigate adverse impacts to the natural environment and to protect the biodiversity of the area for economic and social benefits. The use of the Marine Reserve is regulated through zonation – the Preservation, Conservation and General Use zones. The Conservation zone is for non-extractive recreational use – primarily snorkeling and diving – with no commercial or sport fishing allowed. The Preservation zone does not allow any activities (fishing or recreational), nor does it allow entrance to motorboats, except in emergencies. However, the General Use zone permits fishing by traditional users through a special license system. Catch and release sport fishing is also permitted.

Access, use and visitation: Beyond its ecological significance, Caye Caulker holds rich cultural, historical, and indigenous values deeply rooted in the traditions of the Mestizo, Creole, and Garifuna communities. Traditional fishing practices are integral to the local community's livelihood and cultural identity, embodying centuries-old customs passed down through generations. Moreover, the area's historical importance as a hub for navigation, trade, and sustenance underscores its enduring significance as a source of cultural heritage and communal pride for residents and visitors alike.

Threats and challenges: While the CCMR plays a crucial role in conserving biodiversity and supporting sustainable fisheries and tourism, it faces challenges such as unsustainable fishing practices, pollution, and coastal development. However, through effective management strategies and community engagement, there is hope for the continued protection and preservation of the Caye Caulker Marine and Forest Reserve and its valuable ecosystems.

4.13.4 Values

The NECO (Natural, Ecosystem Services, Cultural values) table is a tool used to assess various aspects of a protected area, integrating a wide range of indicators. This analysis is particularly important for identifying areas of strength and opportunities for improvement in the management of Caye Caulker Marine Reserve (CCMR).

Table 28. NECO, Caye Caulker Marine Reserve (CCMR)

	Major values	Thresholds	Conditions	Trends
Natural values	Coral reefs	very good (4.3-5.0),good (3.5-4.2),fair (2.7-3.4),poor (1.9-2.6), critical (1.0-1.8)	Data not available	Fair condition
	Lobsters	N/A	12 lobsters per hour swim based on 2023 lobster density surveys	Population Stable
	Conch	>50 conch/Hectare for successful reproduction	Approximately 71 adult conchs per Hectare	Results of the 2023 NCS show that the area has a 1.4 fold on what is considered to be a healthy population for successful reproduction per Ha.
Ecosystem Services	Coastal Protection	N/A	N/A	fair
	Fishing/Food	N/A	N/A	Data related to subsistence fishing is not being recorded
	Tourism	8128 in 2022	7733 non-Belizean visitors in 2023	7,733 Total Visitors Logged during 2023
Cultural Values	Traditional fishing of commercial Fisheries	N/A	364	number of patrols
	Recreational Activities by locals	N/A	N/A	Belizean visitors are not being recorded
	Cultural features (The Split, & Shark ray alley)	N/A	N/A	Belizean visitors are not being recorded

Some recommended actions for the NECO table according to the thresholds for success in conservation, is to consider specific, measurable, and realistic steps that CCMR can take:

- Set explicit thresholds and document the conditions and changes in cultural values systematically
- Clearly articulate and continuously monitor performance metrics for ecosystem services to better gauge their status over time
- Update reporting mechanisms to dynamically reflect trends and modify thresholds in response to evolving conditions.

4.13.5 Summary of IUCN Green List self-assessment IBEX

Important note: to date, the self-assessment Green List IBEX and NECO tables have not been completed. Thus, the analysis below will be referred to the other documentation available, such as a Management Plan 2021 - 2026.

IBEX scores by component

Overall Score	Good governance	Sound design and planning	Effective management	Conservation outcomes	
78%	**91%**	**96%**	**69%**	**54%**	**Near alignment**

IBEX scores by criterion

Good governance			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
1.1 Guarantee legitimacy and voice	88%	There are clearly defined, legitimate equitable and functional governance arrangements, in which the interests of civil society, all substantive and legitimate rights-holders and stakeholders are fairly represented and addressed. Governance mechanisms promote gender equity and diversity. There is mutual respect for the governance arrangements in place and for the management authority among key actors. Processes are in place to redress any identified legacy issues relating to site establishment, designation(s) or past management decisions.	There are legal frameworks that guides these processes. Strengthen inclusive governance by enhancing the representation of minority and underrepresented groups within management decision-making processes. Develop and implement feedback mechanisms to regularly assess stakeholder satisfaction and governance effectiveness.
1.2 Achieve transparency and accountability	90%	Governance structures are clear and well-communicated. Management provisions are documented and available and regularly revised. Membership of	Enhance transparency by making all governance documentation and management decisions publicly accessible online.

		key decision-making bodies is public and there are accessible means to communicate on issues of concern. Decision-making processes are transparent, and their results well-documented and published. There is an active process for addressing disputes and grievances related to governance and management., with response mechanisms in place.	Establish a regular audit of management practices and decisions by an independent body.
1.3 Enable governance vitality and capacity to respond adaptatively	100%	Planning and management draws on the best available knowledge of the social and ecological context of the site, using an adaptive management framework that anticipates, learns from and responds to change in its decision-making. Planning and management processes draw on multiple knowledge sources (scientific, experiential, local and traditional knowledge) as well as appropriate technology. The site has, where relevant, considered historical changes and future projections in social, ecological and climate conditions. Adaptations to projected climate change impacts are factored into governance and management structures.	Continuously maintain the good governance vitality with the existing management framework
Sound design and planning			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
2.1 Identify and understand major site values	100%	There is a clear and defined area-based conservation measure in place for which the major values for conservation of nature with associated ecosystem services, and cultural values are identified and understood. The site has a	Continue regular biodiversity assessments to update and refine understanding of key conservation targets.

		current and functioning management plan (or equivalent) that is regularly revised and updated.	
2.2 Design for long-term conservation of major site values	80%	The site's designation, scale, connectivity and characteristics are well-aligned with conservation goals and objectives. Major site values are fully identified and understood and design and planning can help address their long-term conservation needs. The design of the site in its landscape/seascape context supports long-term maintenance of the major site values.	Implement MP with all stakeholders' engagement
2.3. Understand threats and challenges to major site values	100%	There is a good understanding of all current threats and challenges to major site values, including climate change impacts. All threats and challenges are described in sufficient detail to enable informed planning and management to adapt to or mitigate them.	Conduct systematic threat assessments during every MP review cycle to update list of threats and corresponding actions.
2.4 Understand social and economic context	100%	There is a good understanding of the social and economic context and this is reflected in most management goals and objectives.	Conduct regular socio-economic studies to assess the impact of conservation activities on local communities.
Effective management			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
3.1 Develop and implement a long-term management strategy	50%	There is a form of management strategy with some goals and objectives for the conservation of at least a few of the major site values, that has partial relevance to the ecological, social and economic context of the site. However, management approaches are limited in their scope to promote fair and	strategies and activities for social and cultural activities is needed.

		functioning working conditions. Implementation may lack adequate resourcing and material. A lack of finance may prevent effective management operations.	
3.2 Manage ecological condition	50%	There is some planning and capacity in place to manage and maintain ecological attributes and processes of major site values, but more comprehensive management is required, and/or more major site values need to be covered by ecological management approaches.	Planning and capacity need to be enhanced to cover more major site values with ecological management approaches.
3.3 Manage within social and economic context of the area	75%	There is capacity and mandate in place for engaging rights-holders and stakeholders. They are incorporated into most areas of management planning and operations, covering most of the social and economic context of the site.	Implement programs that integrate sustainable livelihood opportunities for local communities into conservation strategies.
3.4 Manage threats	50%	Some threats are identified and being responded to, so that their impact is lessened on some major site values identified, or on the achievement of the site's goals and objectives.	Further identification and response to threats are needed to lessen their impact on the site's values and objectives.
3.5 Effectively and fairly enforce laws and regulations	77%	Laws, regulations and restrictions are applied to most aspects of site management. There is adequate organization of compliance operations and some coordination on enforcement. Information on regulations and their implications is mostly available to local stakeholders and the public.	Strengthen the enforcement mechanisms to ensure laws, regulations, and restrictions support the management of the site.
3.6 Manage access, resources use and visitation	79%	When permitted, activities within the area that involve direct access to resources are mostly compatible with and support the achievement of the area's conservation goals and objectives,	Refine regulations and visitor management strategies to ensure activities within the area support the area's conservation goals and meet user needs.

		meet the needs of users, and are properly regulated. When permitted, tourism regulation and visitor management is sufficient, and contributes, in part, to the achievement of the area's conservation goals and objectives.	
3.7 Measure success	100%	All major site values are assessed through a robust set of monitoring, evaluation and learning programmes. Objectively determined thresholds are set for performance measures for each of these major site values to help determine successful conservation outcomes.	Continue robust monitoring, evaluation, and learning programs to assess all major site values and determine successful conservation outcomes.
Successful conservation outcomes			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
4.1 Demonstrate conservation of major natural values	50%	The site can show partial or improved success through conservation efforts for most major natural values.	Focus on demonstrating improved success through conservation efforts for major natural values.
4.2 Demonstrate conservation of major associated ecosystem services	63%	The site can demonstrate success through conservation efforts for the majority of major ecosystem services.	Show successful conservation efforts for major ecosystem services.
4.3 Demonstrate conservation of cultural values	100%	The site can show partial or improved success through conservation efforts for most major cultural values.	Continue to show success through conservation efforts for major cultural values, focusing on integrating and enhancing cultural heritage within conservation strategies.

4.13.6 Summary and recommendations

Summary of the key achievements and identification of areas where the protected area does not meet Green List Standard.

Governance

The governance of Caye Caulker Marine Reserve is fundamentally supported by a multi-stakeholder approach that emphasizes transparency, accountability, and community engagement. Governed under the auspices of the Belize Fisheries Department, CCMR integrates legal, institutional, and local community frameworks to manage their site.

The IBEX assessment of CCMR has revealed substantial strengths in governance, particularly in fostering community involvement and ensuring transparency. The reserve self-scored 82% in 'Governance Vitality', which assesses the effectiveness of management structures and stakeholder engagement. This high score reflects well-defined governance frameworks that not only promote but also implement participatory management and decision-making processes. It signifies a good system where stakeholders, including local fishers and tourism operators, are regularly consulted and actively contribute to the CCMR management strategies.

One of the key highlights from the IBEX evaluation is the extensive stakeholder engagement, where CCMR achieved a score of 78% in 'Stakeholder Inclusion'. This score indicates a strong connection between the reserve's management and the local community, fostering a governance model that supports sustainable development and conservation. Regular workshops, meetings, and feedback mechanisms ensure that stakeholders have a voice in the reserve's ongoing management and policy adjustments, reflecting a commitment to inclusive conservation practices.

CCMR's management practices scored 75% in 'Transparency and Accountability', showcasing a transparent approach to governance that promotes open communication and public access to information. Management decisions, budget allocations, and policy changes are made available through public reports, the reserve's website, and community meetings. However, the assessment suggests that there is room for improvement in making some of these processes more accessible and understandable to all community members, particularly in translating technical conservation data into actionable insights for non-specialists.

Design and Planning

CCMR's MP (2021-2026) objectives focus on: protecting and managing functional samples of important ecological systems (including coral reef and seagrass) to ensure their protection and management; preserving CCMR for its intrinsic value and for its socio-ecological and socio-economic potential, including fisheries and tourism, and the export of adult marine life in addition to other important marine genetic resources and resource-based activities; developing sustainable and ecologically balanced recreational and tourism activities that enhance the economic and social benefits of the area; providing natural areas for the promotion of education and research.

Natural and cultural values are adequately identified, as are threats to natural and cultural values (including climate change). The latter needs to be reassessed during every MP review cycle to update list of threats and corresponding actions.

Management

The IBEX assessment provides a detailed quantitative evaluation of CCMR's management practices. Notably, the reserve scored an impressive 85% in 'Ecological Condition Management'. This high score is indicative of the effective measures implemented to maintain the health of marine ecosystems, emphasizing habitat protection, species monitoring, and enforcement of conservation policies.

CCMR's adaptive management strategy, scored at 75% by the IBEX, reflects its commitment to evolving management practices based on the latest scientific research and ecological data. The marine reserve uses ongoing monitoring and evaluation to adapt its strategies, ensuring that they remain effective in the face of environmental changes and new ecological insights. Enhancements in this area could involve a more systematic integration of stakeholder feedback into adaptive management processes, promoting a more inclusive approach to conservation.

Managing resource use within CCMR remains challenging, as evidenced by a lower score of 65% in 'Resource Use and Regulation'. While the reserve has effectively delineated zones for various activities to reduce ecological impacts, enforcement and compliance continue to pose significant challenges. Enhancing surveillance capabilities and increasing on-ground enforcement personnel could help address these issues, ensuring that the regulations are more rigorously upheld.

Conservation outcomes

The IBEX self-assessment scores CCMR at 85% for monitoring and demonstrating its natural values, indicating success in enhancing ecological integrity. These positive outcomes are attributed to proactive management actions, such as species protection initiatives and habitat restoration, which have improved marine life health and diversity.

For the ecosystem services management, CCMR self-scored 78% on the IBEX. This reflects effective management practices that have bolstered ecosystem services, such as storm protection, carbon sequestration, and water purification. The reserve's ongoing efforts to promote sustainable tourism have also contributed to preserving these critical services, aligning with economic development and environmental sustainability.

CCMR scored 72% on conserving cultural values, demonstrating a focused approach to integrating cultural heritage into conservation strategies. This includes community-driven initiatives to protect historical fishing methods and celebrate local marine-related traditions. Although progress has been made, this score suggests further room for improvement in fully capturing the socio-cultural dynamics within conservation practices.

4.13.7 Key recommendations for the IUCN Green List process

Based on suggestions made by the managers on how these could be addressed, Discussion on additional resources or changes needed to meet Green List Standard.

To ensure good governance, effective management, and demonstrable conservation outcomes, addressing the recommendations outlined in the IBEX results and self-assessment exercises is crucial, focusing on strengthening capacity, refining management practices, and enhancing community engagement. Some key components are:

Ensure Good Governance

To ensure good governance, the IBEX results of CCMR recommend strengthening the reserve's capacity to manage human impacts on sensitive ecosystems and expand efforts in

building ecological resilience against climate change. Additionally, enhancing feedback mechanisms to ensure that stakeholder contributions are not only heard but also acted upon can further improve governance effectiveness.

- Strengthen the reserve's capacity to manage human impacts on sensitive ecosystems.
- Expand efforts in building ecological resilience against climate change.
- Enhance feedback mechanisms to ensure stakeholder contributions are heard and acted upon.

Sound Design and Planning, Effective Management

In terms of design, planning, and management, the CCMR management implementation faces ongoing challenges, such as securing long-term funding and enhancing enforcement mechanisms to combat illegal activities within the reserve. The IBEX results reflect a strong foundation in ecological management and stakeholder engagement, with areas for improvement in resource regulation and adaptive management processes, as follows:

- Secure long-term funding for the reserve.
- Enhance enforcement mechanisms to combat illegal activities.
- Improve resource regulation and adaptive management processes.
- Continue refining ecological management and stakeholder engagement.

Demonstrate Conservation Outcomes

IBEX assessment showed that CCMR's need to demonstrate further the outcomes adapted to the impacts of climate change to ensure the resilience of CCMR's conservation achievements. Some key areas are:

- Increase community engagement in conservation efforts.
- Prioritize cultural conservation alongside biological and ecological goals.
- Adapt to the impacts of climate change to ensure conservation resilience.

4.13.8 Additional resources (links)

- Management documents: Caye Caulker Marine Reserve Management Plan 2021-2026
- NPAS-MEE

4.14 Turneffe Atoll Marine Reserve

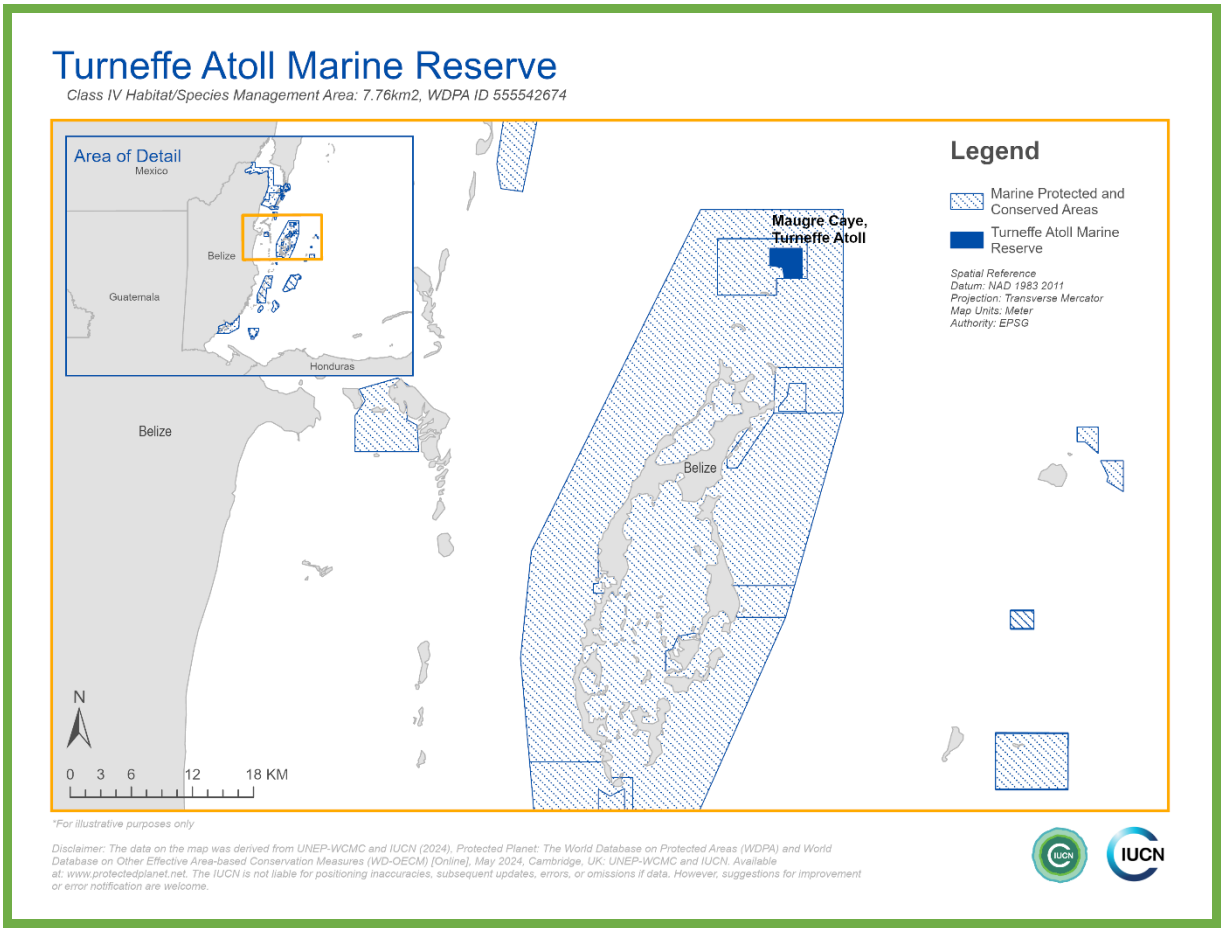
4.14.1 Key facts

Table 29. Site description, Turneffe Atoll Marine Reserve

WDPA ID	**555542674**
Reported area (km^2)	**7.76**
IUCN management category	**IV Habitat/Species Management Area**
Status:	**Designated**
Type of designation	**National**
Status year	**2003**
Governance type	**Governance by government**
Management authority	**Fisheries Department**
Co-Management	**TASA (Turneffe Atoll Sustainability Action)**
Management plan (dates)	**2023 – 2027**
Management Effectiveness Evaluations	**MEE (2023)**

4.14.2 Site Summary

Figure 16. Map, Turneffe Atoll Marine Reserve



4.14.3 Brief overview

Description of the key ecosystems and species that the area aims to protect. Any cultural, historical, or indigenous values associated with the area

Turneffe Atoll Marine Reserve (TAMR) is Belize's largest and most biologically diverse marine reserve in the Western Hemisphere. It is an integral part of Belize's reef system and one of the most developed atolls in the Mesoamerican Reef (MAR) region, a global ecological hotspot for marine biodiversity.

Geography and location: Located 50 km east of the central Belizean coast and Belize City, TAMR is the largest and most developed of the three atolls that lie beyond the barrier reef within Belize's marine space. The marine reserve encompasses the entire atoll as well as an area of the surrounding open sea, covering an estimated 1,470.63 square km (363,400 acres). It includes three spawning aggregation sites (two protected under SI 162, the third under SI 49 of 2009) and a Lands Department public reserve protecting the crocodile nesting site at Cockroach Bay. TAMR is accessible by boat, plane and helicopter.

Ecological richness: Turneffe Atoll is one of the most pristine areas within the Meso-American Reef System. Its diverse ecosystems, including reefs, seagrass beds, lagoons and mangroves, are globally outstanding and make it one of the best developed coral atolls in the Caribbean. Seagrass and mangroves provide vital nursery habitats, and five spawning sites essential for endangered Nassau grouper and other species have been identified on the Atoll's walls, with three protected. It also provides important ecosystem services. These include storm protection along the Belizean coast, including Belize City, due to its location and intact reef crest, cayes and mangroves. The atoll also breaks waves and protects the barrier reef from St George's Caye to Emily Caye, maintaining the integrity of the reef crest in this area.

Biodiversity highlights: TAMR serves as an important nursery for queen conch, Caribbean spiny lobster and many reef fish, and supports populations of Antillean manatees, American crocodiles and dolphins. It also provides nesting sites for green, loggerhead and hawksbill turtles, and its deep waters provide habitat for pelagic species such as marlin, sailfish, mackerel, sharks and whales. The atoll is home to critically endangered staghorn and elkhorn corals and the endemic white-spotted toadfish. Its sandy beaches and brackish lagoons are prime nesting grounds for American saltwater crocodiles. Coastal and migratory birds include ospreys, brown pelicans, brown boobies, great frigatebirds, royal terns and various herons. The endangered roseate tern and white-crowned pigeon also nest on the atoll.

Conservation and management: After 20 years of arduous lobbying by different stakeholders, TAMR was declared a multiple-use protected area in 2012 (SI 105 of 2012). Following the declaration of the protected area, in October 2013 the Ministry of Forestry, Fisheries and Sustainable Development appointed the Turneffe Atoll Sustainability Association (TASA), a non-profit non-governmental organisation, as co-manager for the day-to-day operations of the marine protected area. In order to increase representation of deep-sea ecosystems and contribute to Belize's 30x30 protected area target, the boundaries were subsequently expanded in 2022 (SI 71 of 2022). The marine reserve footprint includes three spawning aggregation sites (two protected under SI 162, the third under SI 49 of 2009) which have been integrated into the management responsibilities.

Cultural, spiritual and heritage values: The historical use of Turneffe Atoll began with Mayan traders who sailed the coastal waters of the Mesoamerican reef. There are also anecdotal reports of pirates and trading sloops in the 18th century using the atoll for fresh water replenishment and as a base of operations.

Access, use and visitation: Today, commercial fishing and tourism are the mainstays of Turneffe's economy. For many decades, the atoll has been vital to the livelihoods of commercial fishermen, providing direct employment for over 2,710 fishermen and income for their families. It is also hoped that TAMR will become a pioneer in marine research and education in Belize due to its unique biological and geographical characteristics. Key stakeholders in Turneffe include commercial fishermen, tourists and tourism operators, educational institutions, private landowners, the Government of Belize (as a major landowner and through the Marine Reserve) and the Belize Coast Guard.

Threats and challenges: Inappropriate, destructive development, such as clearing mangroves and filling low-lying areas with dredge spoil, is considered one of the greatest threats to TAMR. Similarly, proposed over-water developments could further degrade the atoll's fringe coral reef and backreef flats. The TAMR is also experiencing climate change, threatening its ecosystems and key species, as in many areas of the Caribbean. The sustainability of Turneffe's commercial fisheries is another concern, with limited data suggesting a worrying decline. In addition, the invasive lionfish (Pterois volitans) poses a serious threat to the TAMR.

4.14.4 Values

The NECO (Natural, Ecosystem Services, Cultural values) table is a tool used to assess various aspects of a protected area, integrating a wide range of indicators. This analysis is particularly important for identifying areas of strength and opportunities for improvement in the management of Turneffe Atoll Marine Reserve (TAMR).

Table 30. NECO, Turneffe Atoll Marine Reserve

	Major values	Thresholds	Conditions	Trends
Natural values	Sea Turtles	N/A (previous Yrs. <19)	Hawksbill = 19 (yr. 22)	Population Increasing
	Nassau Grouper	? (previous Yrs. >155)	Nassua = 155	Population Declining
	Lobster	Lobster = 567 (yr. 2022)	Lobster = 144 (yr. 2023)	Population Declining
Ecosystem Services	Tourism	Visitors=40836(yr.2015)	Visitors=20195 (yr.2023)	Population declined from 2015 however is increasing after the Pandemic (covid-19)
	Commercial Fishing	Fisherman=221 (yr. 2012)	Fisherman=974 (yr. 2019)	Fisherman increased in 2019 due to the pandemic. Tour guides became fishers
Cultural Values	WHS	N/A	N/A	N/A

Some recommended actions for the NECO table, according to the thresholds for conservation success, is to consider specific, measurable, and realistic steps that Turneffe Atoll Marine Reserve (TAMR) can take:

- Establish precise thresholds and metrics for cultural values, enhancing their documentation within the NECO table.
- Refine monitoring protocols to focus more effectively on evaluating the status and condition of the identified values
- Regularly revise and update reports on trends and adjust thresholds as needed to ensure adaptability to environmental and social changes.

4.14.5 Summary of IUCN Green List self-assessment IBEX

IBEX scores by component

Overall Score	Good governance	Sound design and planning	Effective management	Conservation outcomes	
71%	**93%**	**99%**	**69%**	**21%**	**Near alignment**

IBEX scores by criterion

Good governance			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
1.1 Guarantee legitimacy and voice	100%	There are clearly defined, legitimate equitable and functional governance arrangements, in which the interests of civil society, all substantive and legitimate rights-holders and stakeholders are fairly represented and addressed. Governance mechanisms promote gender equity and diversity. There is mutual respect for the governance arrangements in place and for the management authority among key actors. Processes are in place to redress any identified legacy issues relating to site establishment, designation(s) or past management decisions.	Enhance stakeholder engagement to maintain high legitimacy and involvement in governance, particularly focusing on the inclusion of underrepresented groups.
1.2 Achieve transparency and accountability	80%	Governance structures are clear and well-communicated. Management provisions are documented and available and regularly revised. Membership of key decision-making bodies is public and there are accessible means to communicate on issues of concern. Decision-making processes are transparent, and their results well-documented and	Improve accessibility and visibility of governance processes to stakeholders through enhanced communication channels and regular updates.

		published. There is an active process for addressing disputes and grievances related to governance and management., with response mechanisms in place	
1.3 Enable governance vitality and capacity to respond adaptatively	98%	Planning and management draws on the best available knowledge of the social and ecological context of the site, using an adaptive management framework that anticipates, learns from and responds to change in its decision-making. Planning and management processes draw on multiple knowledge sources (scientific, experiential, local and traditional knowledge) as well as appropriate technology. The site has, where relevant, considered historical changes and future projections in social, ecological and climate conditions. Adaptations to projected climate change impacts are factored into governance and management structures.	Develop and implement training programs to boost adaptive management capabilities, focusing on emerging environmental and socio-economic challenges.
Sound design and planning			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
2.1 Identify and understand major site values	100%	There is a clear and defined area-based conservation measure in place for which the major values for conservation of nature with associated ecosystem services, and cultural values are identified and understood. The site has a current and functioning management plan (or equivalent) that is regularly revised and updated.	Regularly update and refine ecological and cultural assessments to ensure that management actions remain aligned with the most current data.
2.2 Design for long-term conservation of major site values	100%	The site's designation, scale, connectivity, and characteristics are well-aligned with conservation goals and objectives. Major site values are fully identified and understood, and design and planning can help address	Continuously evaluate and adjust the spatial design and zoning within the reserve to better align with ongoing research and conservation findings.

		their long-term conservation needs. The design of the site in its landscape/seascape context supports long-term maintenance of the major site values.	
2.3. Understand threats and challenges to major site values	100%	There is a good understanding of all current threats and challenges to major site values, including climate change impacts. All threats and challenges are described in sufficient detail to enable informed planning and management to adapt to or mitigate them.	Conduct systematic assessments during every MP review cycle to better understand threats and identify appropriate actions.
2.4 Understand social and economic context	96%	There is a good understanding of the social and economic context, and this is reflected in most management goals and objectives.	Conduct assessment to better understand site impact on social balances of the region.
Effective management			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
3.1 Develop and implement a long-term management strategy	55%	There is a form of management strategy with some goals and objectives for the conservation of at least a few of the major site values, that has partial relevance to the ecological, social and economic context of the site. However, management approaches are limited in their scope to promote fair and functioning working conditions. Implementation may lack adequate resourcing and material. A lack of finance may prevent effective management operations.	Technical and operational capacity needs to be strengthened to implement activities as described in the management plan. Acquire equipment and build infrastructure needed to conduct activities safely and efficiently. Increase the number of staff to implement activities safely and efficiently. Secure a stable, diversified financial base and develop a comprehensive financial sustainability strategy.
3.2 Manage ecological condition	67%	There is planning and capacity in place to manage and maintain ecological attributes and processes of major site values, but more comprehensive approaches may be	Identify and implement strategies and activities needed to protect ecological features and processes.

		required, and/or a more comprehensive suite of major site values should be considered.	
3.3 Manage within social and economic context of the area	75%	There is capacity and mandate in place for engaging rights-holders and stakeholders. They are incorporated into most areas of management planning and operations, covering most of the social and economic context of the site.	The economic and social context of the site needs to be considered to support goals and objectives included in the management plan. It is also strategic to consider opportunities to enhance economic and social benefits the site provides to local communities.
3.4 Manage threats	33%	There is some intent, but limited capacity, to respond to threats, if identified, to recognized major site values.	Design and implement a work program with activities that effectively respond to the main threats to natural and cultural values as well as the site's goals and objectives.
3.5 Effectively and fairly enforce laws and regulations	85%	Laws, regulations and restrictions are fairly and effectively applied to all aspects of site management. There is adequate organization of compliance operations and coordination on enforcement. Information on regulations and their implications is fully available to local stakeholders and the public.	The site needs to increase the number of rangers to conduct effective surveillance throughout the site. Rangers need to be sufficiently equipped and trained to conduct safe and effective surveillance.
3.6 Manage access, resources use and visitation	81%	When permitted, activities within the area that involve direct access to resources are compatible with and support the achievement of the area's conservation goals and objectives, meet the needs of users, and are properly described and regulated. When permitted, tourism and visitor management are compatible with and support the achievement of the area's conservation goals and objectives.	Improve description of types and levels of permitted activities and its accessibility to the public. Work on permits, access control, enforcement and education strategies to minimise harm to major site values coming from use and access to natural resources. Improve the site´s services and facilities to meet safety and environmental standards as well as needs of different audiences and age groups, including disadvantaged people.

3.7 Measure success	90%	All major site values are assessed through a robust set of monitoring, evaluation and learning programmes. Objectively determined thresholds are set for performance measures for each of these major site values to help determine successful conservation outcomes.	Implement a more detailed and frequent evaluation framework to assess the effectiveness of management actions in achieving conservation targets.
Successful conservation outcomes			
Criteria	**IBEX ranking**	**Justification**	**Priority actions recommended**
4.1 Demonstrate conservation of major natural values	50%	The site can show limited success from conservation efforts for some major natural values.	Increase the record of achievement of each natural value threshold through the site's established monitoring programme.
4.2 Demonstrate conservation of major associated ecosystem services	13%	There are no discernible conservation outcomes for any major ecosystem services.	Document the good conditions of the identified ecosystem services
4.3 Demonstrate conservation of cultural values	0%	There are no discernible conservation outcomes for any major cultural values.	Demonstrate and promote cultural heritage programs that engage local communities and visitors, enhancing the appreciation and conservation of cultural assets.

4.14.6 Summary and recommendations

Summary of the key achievements and identification of areas where the protected area does not meet Green List standard.

Governance

Turneffe Atoll Marine Reserve's (or TAMR) management structure scored full compliance thanks to the active participation of local communities, indigenous people, and various rights-holders in decision-making processes, fostering a collaborative approach to the TAMR's governance. Efforts are made to include women in decision-making roles and staff positions, ensuring gender inclusivity. The Management Plan is publicly accessible, and the formal decision-making body and its members are transparent to the public.

Despite these efforts, the grievance mechanism in place seems to not easily accessible to all local stakeholders, according to the IBEX score of 80%. Local communities, indigenous people, and other rights-holders are integral to the planning and implementation of activities within the Turneffe Atoll Marine Reserve. Their legitimate rights to access, cultural practices, and resource use are respected, and their support for the site's decision-making processes is strong. The management actively incorporates consultations with these groups, considering their problems, priorities, goals, and ambitions in the site's plans and activities. This inclusive approach is mirrored in the partial availability of outcomes from decision-making discussions to the public, highlighting a commitment to transparency and responsiveness to stakeholder concerns.

The management of Turneffe Atoll Marine Reserve emphasizes evidence-based decision-making by self-assessing the Governance component with the score of 93%, integrating scientific data with the knowledge and experience of local communities. While the site plans partially consider the relevance of historical and current community dynamics, it strives to anticipate future changes to enhance resilience and sustainability. This comprehensive planning approach ensures that both ecological and community needs are balanced, aligning with national priorities and the aspirations of local stakeholders.

Design and Planning

TAMR's major values for conservation of nature with associated ecosystem services and cultural values are accurately identified and well understood. The site has a functioning MP (2023-2027) that is regularly revised and updated, and its designation, scale, connectivity and characteristics are well-aligned with conservation needs and goals.

TAMR's main objectives up to 2027 are to be well positioned as a national and regional model for the effective management of fisheries resources, with improved sustainable production for TAMR fishers; to maintain healthy, resilient, biodiverse reefs at or above the 2022 HRI status; to be a model for ecologically sustainable tourism; to have tourism activities contribute at least 50% of annual TAMR operational costs; to implement non-tourism based sustainable financial mechanisms (contributing 10% of operational costs).

There is a good understanding of the social and economic context, and this is reflected in most management goals and objectives. While the social and economic context criterion IBEX score is 96%, which falls under full Green List alignment, the only element that could be improved consists of the site's impacts on the region's social balances.

The site demonstrates that it incorporates research and monitoring data into management decisions to address conservation needs. TAMR's design supports the achievement of conservation goals.

Effective Management

While TAMR self-assessed through IBEX with the score of 99% for its design and planning, the reserve scored lower for the effectiveness management implementation (69%).

TAMR has a current management plan which includes the goals and objectives for management of the natural values and social and economic objectives identified, management strategies and activities to achieve these goals over the long term and an indication of the activities that are allowed or prohibited in the site and any zoning or temporal/spatial restrictions on access to or use of the site. However, not all activities are being conducted and implemented as described in the Management Plan, basically because there is not enough staff and there are financial constraints that limits capacity to conduct planned management activities.

There is some intent, but limited capacity, to respond to threats recognized for major site values. It is necessary to design and implement a work program with activities that effectively respond to the main threats to natural and cultural values as well as the site's goals and objectives.

Regarding Standard Operational Procedures is important to highlight that TAMR has clearly outlined operational mandates, rules of engagement, compliance mechanisms and a code of conduct for Rangers. This is related to the effective application of laws, regulations and restrictions in this site. More rangers are needed to scale up these results and conduct effective surveillance throughout the site.

Conservation outcomes

This is evidenced by the IBEX score, which highlights moderate success in the conservation of major natural values (IBEX ranking: 50%).

According to IBEX, TAMR showed enhancements, particularly in provisioning and cultural services, significantly benefiting local communities through sustainable practices in fishing and eco-tourism. However, the IBEX assessment also indicates that conservation outcomes for major associated ecosystem services remain relatively low (IBEX ranking: 13%), suggesting that the potential of these services to contribute to conservation and community welfare is underutilized.

Moreover, the integration and promotion of cultural values within the reserve are minimal, as reflected in the IBEX scores showing no discernible conservation outcomes for cultural values (IBEX ranking: 0%). This area requires a strategic focus to document, protect, and integrate cultural heritage more effectively into conservation practices.

4.14.7 Key recommendations for the IUCN Green List process

Based on suggestions made by the managers for how these could be addressed. Discussion on additional resources or changes needed to meet Green List standard.

During the mission to Belize in September 2023, the involved team had an opportunity to visit the Turneffe Atoll Marine Reserve (TAMR) and engaged in dialogues with the co-site managers, Turneffe Atoll Sustainability Action (TASA).

Based on the field visit, suggestions made by the managers through the IBEX, the current management plan, and NPAS MEE, this section highlights the needs of the TAMR and the areas requiring improvement to meet the comprehensive standards set by the IUCN Green List. Some key areas are:

Ensure Good Governance

- Ensure all governance bodies are inclusive and represent the full spectrum of stakeholders, including local communities, commercial interests, and conservation groups, to comply with Criterion 1.1.
- Develop clear mechanisms for reporting and evaluating the effectiveness of management actions and policy implementations, including public access to information and regular updates on management progress and challenges.
- Implement feedback mechanisms that allow stakeholders to contribute to ongoing improvements and adaptations in management and conservation strategies.

Sound Design and Planning, Effective Management

- Conduct an additional assessment to clarify the site’s impacts on the region’s social balances.
- Identify and implement strategies and activities needed to protect ecological features and processes, complying with IUCN Green List Criterion 2.1.
- Leverage the tourism sector's strengths and the co-site management team's capacity to support financial sustainability and site goals.
- Consider opportunities to enhance the site's economic and social benefits to local communities and showcase these efforts.
- Work on permits, access control, enforcement, and education strategies to minimize harm to major site values from using and accessing natural resources.
- Improve the site’s services and facilities to meet safety and environmental standards, catering to different audiences and age groups, including disadvantaged people.

Demonstrate Conservation Outcomes

- Implement specific conservation programs aimed at critical habitats and species requiring urgent attention, based on the latest scientific research and traditional ecological knowledge.
- Establish robust monitoring systems to track biodiversity status and the effectiveness of conservation interventions, using this data to adapt and refine management strategies.
- Enhance the role of local communities in conservation planning through education, capacity building, and direct involvement in conservation work.
- Develop community-led tourism and conservation initiatives that provide economic benefits while promoting conservation.

4.14.8 Additional resources (links)

- Management documents: Management Plan 2023-2027
- Law and policy: SI_No.75-2022_Fisheries_TAMR_Amendment-Regulations
- TASA report 2021
- NPAS-MEE

5. Conclusion

The " Report on the effectiveness of 14 marine protected areas in Belize, using the IUCN Green List Standard to benchmark current status and assess performance" synthesises the findings from the comprehensive assessment using the Green List IBEX self-assessment tool, along with additional data from management effectiveness evaluations, legal and policy reviews when relevant and various useful websites.

This report has provided pre-assessments of the current effectiveness of 14 Marine Protected Areas (MPAs) in Belize and the recommendations for improvement against the IUCN Green List Standard, demonstrating the critical role these areas play in conserving the country's marine biodiversity. Despite significant achievements in establishing and managing these MPAs, variability in their management effectiveness underscores the need for targeted strategies to enhance overall performance.

5.2 Key findings

Varied effectiveness across MPAs: The effectiveness scores of Belize's MPAs vary widely, indicating that while some areas are well-managed and achieving their conservation goals, others are still advancing the efforts. This variability points to a need for tailored management approaches that consider the specific challenges and resources of each MPA.

Strong institutional frameworks: The robust legal and policy frameworks guiding the MPAs are foundational to their success. However, the effective implementation of these frameworks varies, suggesting that more consistent enforcement and application are necessary.

Importance of stakeholder engagement: Effective management is heavily dependent on active participation from local communities, stakeholders, rightsholders and governing bodies. Strengthening these relationships is crucial for the sustainable success of MPAs.

Measuring what counts, setting thresholds for success, and thereby placing more emphasis on **demonstrating conservation outcomes for important MPA site values**, across natural, ecosystem and cultural heritage priorities.

Alignment with global standards: The strategic incorporation of the IUCN Green List Standard provides a clear pathway for MPAs not only to measure and enhance their effectiveness but also to contribute to global conservation targets such as the "30x30" goal under the Global Biodiversity Framework.

5.3 Recommendations

1. Inclusive governance: Developing more inclusive governance models that integrate the inputs and cooperation of all stakeholders will improve the legitimacy and

effectiveness of MPA management. Identify further and engage rightsholders, including Indigenous Peoples (IPs) and Local Communities (LCs) into the decision making
2. Enhance adaptive management practices: MPAs should adopt more adaptive management strategies that are responsive to the dynamic environmental, social, and economic conditions. This includes regular updates to management plans based on scientific data and stakeholder feedback.
3. Improve data collection and monitoring: Systematic data collection and enhanced monitoring practices are essential for accurately assessing MPA performance and informing management decisions.
4. Further demonstrate conservation outcomes: major natural values, and associated cultural and ecosystem service values
5. Increase resources and capacity building: Allocating more resources for training and capacity building can empower MPA managers and staff, equipping them with the tools needed to address conservation challenges effectively.
6. Financial sustainability: Securing sustainable financing through revenue generation mechanisms such as eco-tourism and sustainable fishing practices, and through partnership such as grants, to ensure the long-term viability of MPAs.

The findings and recommendations outlined in this report provide a national roadmap for enhancing the effectiveness of Belize's MPAs using the IUCN Green List pathway for equitable governance and effective management of MPAs that contributes to the successful biodiversity outcomes.

In each case, the 14 MPAs reviewed in this report have the capacity and commitment to meet IUCN global standards, with support and investment, and achieve recognition on the IUCN Green List. **By 2027, it should be expected that five of these sites currently ranking at over 70% alignment with the IUCN Green List Standard could within three years demonstrate such success**, and by 2030, there is no reason why all of the 14 MPAs could not become highly effective and receive recognition for their excellent performance.