



2022 Scientific Consensus Statement | Process

Approach to the Peer Review Process

Katie Sambrook, Jane Waterhouse
C₂O Consulting

Citation

Sambrook K, Waterhouse J (2024) 2022 Scientific Consensus Statement: Approach to the Peer Review Process. C₂O Consulting, Townsville, Queensland. 86pp.

The 2022 Scientific Consensus Statement was led and coordinated by C₂O Consulting coasts | climate | oceans.

This document does not represent government policy of the Commonwealth of Australia and/or the Queensland Government.

© Commonwealth of Australia and the Queensland Government 2024

The Commonwealth of Australia and the Queensland Government support and encourage the dissemination and exchange of their information. The Commonwealth of Australia and the Queensland Government support and encourage the dissemination and exchange of their information. You are permitted to reproduce and publish extracts of the Scientific Consensus Statement, provided that no alterations are made to the extracted content of the Conclusions or Summary documents, and you keep intact the copyright notice and attribute the Commonwealth of Australia and the Queensland Government as the source of the publication. You are free, without having to seek permission from the Commonwealth of Australia and the Queensland Government, to publish the Scientific Consensus Statement in accordance with these conditions.

Cover image: Mulgrave-Russell, Wet Tropics, Queensland.
Photo credit: Dieter Tracey

Contents

1. Introduction	1
1.1 Why peer review is needed	1
1.2 Definition of peer review	2
1.3 2022 SCS guiding principles	3
2. Approach to peer review process	4
2.1 Stages of the 2022 SCS requiring peer review	4
2.2 Peer review options paper	6
2.3 Roles & responsibilities in the peer review process	6
2.3.1 Editorial Board	6
2.3.2 Australia’s Chief Scientist	7
2.3.3 SCS Coordination Team	7
2.3.4 Independent Peer Reviewers	7
2.3.5 ISP and IEP	7
3. Editorial Board	8
3.1 Approach	8
3.2 Nominations and proposed process for selection	8
3.2.1 Editorial Board criteria	8
3.2.2 Process for identifying potential candidates	8
3.2.3 Editorial Board nominations – information requested	9
3.2.4 Assessment process for nominations	9
3.2.5 Assessment Outcomes	11
3.3 Editorial Board operations	11
4. Peer review process for the 2022 SCS syntheses of evidence	12
4.1 Summary of process	12
4.2 Reviewers	14
4.2.1 Number of reviewers and source	14
4.2.2 Closed versus open reviewer identities	14
4.2.3 Reviewer selection criteria and eligibility	14
4.2.4 Developing a list of prospective synthesis of evidence reviewers	16
4.2.5 Inviting and appointing synthesis of evidence reviewers	16
4.2.6 Honorarium for synthesis of evidence reviewers	17
4.3 Format of reviews	18
4.3.1 Structure of reviews	18
4.3.2 Peer Review Form	18
4.3.3 Guidance for synthesis of evidence reviewers	19
4.4 Managing the reviews	19

4.5 Addressing the reviews	19
4.6 Finalising the synthesis of evidence review process.....	20
5. Eminent reviews.....	20
5.1 Summary of process.....	20
5.2 Role of the 2022 SCS eminent reviewers	21
5.3 Eminent reviewer criteria and considerations.....	22
5.4 2022 SCS eminent reviewer honorarium	23
5.5 Process for identifying and appointing 2022 SCS eminent reviewers	23
5.6 Format of reviews	23
5.6.1 Eminent reviewer form	23
5.6.2 Guidance for eminent reviewers	24
5.7 Managing the reviews.....	24
5.8 Addressing the reviews	24
6. References	28
Appendix 1: Summary of review steps for the 2022 SCS.....	29
Appendix 2: Establishment of 2022 SCS Editorial Board	30
Appendix 3: Evidence synthesis peer reviewer invitation issued from Lead Editor	35
Appendix 4: Prospective Evidence Synthesis Reviewer Conflict of Interest form	37
Appendix 5: Guidance document and Evidence Synthesis Peer Review Form.....	40
Appendix 6: Synthesis of Evidence Author Response Template.....	49
Appendix 7: Prospective Eminent Reviewer Form	59
Appendix 8: Guidance document and Eminent Reviewer Review Template	63
Appendix 9: Response template for Eminent Reviews.....	78

1. Introduction

The 2022 Scientific Consensus Statement (SCS) brings together the latest scientific evidence to understand how land-based activities can influence water quality in the Great Barrier Reef (GBR), and how these influences can be managed to improve water quality outcomes for the GBR. The SCS is updated periodically and is used by policymakers as a foundational evidence-based document for making decisions about managing GBR water quality. It is one of several projects that provides supporting information for the design, delivery and implementation of the Australian and Queensland government's Reef 2050 Water Quality Improvement Plan (WQIP). The WQIP defines objectives and targets related to water quality improvement, identifies spatial management priorities and describes actions for improving the quality of the water that enters the GBR from the adjacent catchment area. [C₂O Consulting](#) coasts|climate|oceans was engaged by the Australian government (Department of Climate Change, Energy, the Environment and Water, DCCEEW) and Queensland government (Department of Environment, Science and Innovation, DESI) to coordinate and deliver the 2022 SCS, supported by a multidisciplinary group of over 70 scientists with expertise in GBR water quality and evidence synthesis.

The **primary outputs** of the 2022 SCS are shown in Figure 1 and are:

- The 2022 SCS Conclusions
- The 2022 SCS Summary
- The 2022 SCS Synthesis of the Evidence and high-level Evidence Statements.

These outputs follow an informal hierarchy in the level of detail presented, moving from the full details of the **synthesis of the evidence**, to a **summary** of that material followed by the highest-level **conclusions**.

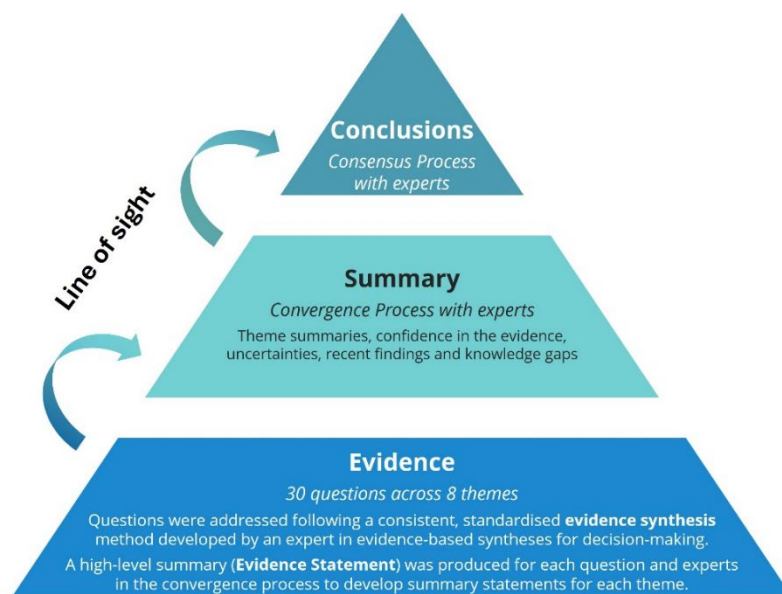


Figure 1. Main outputs and hierarchy of the 2022 Scientific Consensus Statement.

Ensuring that the approaches to develop these outputs engender trust in the overall process is critical. One way to support a positive outcome, is by implementing a rigorous, quality-assured peer review process.

1.1 Why peer review is needed

Peer review is an integral part of the scientific process (Janowicz & Hitzler, 2012), and it has played a central role in every iteration of the SCS. Peer review provides an opportunity to improve the quality of, and confidence in, any piece of work. Peer review typically involves evaluating how the work was

carried out, as well as critically evaluating the contents, key findings, and conclusions to make sure the information is accurate, appropriate, and unbiased (Ross-Hellauer, 2017; Tennant & Ross-Hellauer, 2020).

However, the scientific peer review process is often criticised for being unreliable and inconsistent due to a lack of structure, opaque because reviewers are often anonymous, as well as susceptible to conflicts of interest (Gregory & Denniss, 2019; Ross-Hellauer, 2017; van Rooyen et al., 2010). Readers of the final product rarely get to see how the peer review process works, read what the reviewers thought about the original version, or see how the reviewers' comments shaped the final product. This opacity can diminish trust and confidence especially when it comes to products used for decision-making. In recent years, it has become increasingly evident that to build trust, scientists and decision makers need to be more transparent about how decisions have been made (van Rooyen et al., 2010).

The findings of a Senate Inquiry in 2019¹ found the 2017 SCS peer review process to be adequate, but the Senate Committee stated that more could be done to: “*demystify the science that underpins governments' policy decisions*”. Because the peer review process is a critical quality assurance component for the SCS, the 2022 iteration of the SCS took steps to identify and implement new approaches to help increase transparency, demonstrate independence, and enhance the rigour of this process.

1.2 Definition of peer review

Although peer review is a well-established activity that typically takes place before a scientific manuscript is published or a funding proposal is approved, a formal definition of peer review is elusive (Allen et al., 2019; Horbach & Halffman, 2018). At its simplest, peer review acts as a filter, with peer reviewers recommending whether for example, a manuscript, report or funding proposal should be considered or rejected (Kelly et al., 2014). Peer review can also be used to improve or add value to manuscripts before they are published, with reviewers expected to critically appraise the manuscript and provide constructive feedback (Horbach & Halffman, 2018; Kelly et al., 2014). In addition, peer review has been suggested as a way to identify fraudulent research or errors, but there is little evidence that peer review is successful in that regard (Tennant et al., 2017). As well as the absence of a single, unified definition of what peer review is, there is ambiguity about what qualifies someone to be a peer reviewer. Decisions about the purpose of peer review and how peer reviewers are selected appear to be predominantly journal- and funder-specific, and the criteria underpinning these decisions are rarely articulated (Allen et al., 2019; Tennant & Ross-Hellauer, 2020). As part of the development of the peer review process, it was important to establish an **agreed definition** of peer review that was fit for purpose for the 2022 SCS.

For the 2022 SCS, the Reef Water Quality Independent Science Panel (ISP) and Reef 2050 Plan Independent Expert Panel (IEP) supported the following definition of peer review:

¹ [Rural and Regional Affairs and Transport References Committee: Identification of leading practices in ensuring evidence-based regulation of farm practices that impact water quality outcomes in the Great Barrier Reef, October 2020](#)

The process of critically appraising an author or authors' work to assess the validity of the methods, findings and their interpretation, to minimise risk of bias, maximise transparency, and ensure appropriate rigour has been applied in the development of 2022 SCS products.

1.3 2022 SCS guiding principles

A set of guiding principles were developed that underpin the delivery and implementation of all aspects of the 2022 SCS process. These principles were supported and endorsed by a variety of audiences, stakeholders and end users including Australia's Chief Scientist, the ISP, IEP and the Reef 2050 Advisory Committee. Steps to align the peer review process with these guiding principles are described below:

- 1. Demonstrated independence from end users in the synthesis of the evidence and review of the outputs.**
 - An independent Editorial Board was established to provide an extra layer of independence and oversight. The Editorial Board was the decision-making body for all aspects of the peer review process.
 - Editorial Board members were appointed following a formal selection process.
 - Editorial Board members and all reviewers completed Conflict of Interest (COI) forms and were screened prior to their formal appointment.
 - Reviewers for the 30 evidence syntheses were required to meet pre-determined independence criteria and remain independent of the authors.
- 2. Establish and use fit for purpose methods and processes, and engage fit for purpose experts.**
 - The Editorial Board included six Editors who collectively had several decades of editorial experience with indexed scientific journals.
 - The 2022 SCS peer review process adopted a similar process to indexed scientific journals. Each reviewer provided a recommendation of 'accept', 'minor' or 'major' revisions as per the scientific journal process. A minimum of two reviewers were assigned to review each document, and authors were required to respond to all reviewers' comments and provide clearly documented revisions.
 - For the 30 evidence syntheses, reviewers were approached based on skills and knowledge relevant to the question.
- 3. Increased transparency and robustness in design and delivery.**
 - This document contains a complete description of the design, development and implementation of the 2022 SCS peer review process and is publicly available.
 - All decisions and actions relating to the peer review process have been documented as part of the Terms of Reference for the Editorial Board.
 - All reviewers were required to complete a peer review form which included a series of standard questions about the quality, rigour and content of the material, and asked to provide a recommendation (i.e., accept, minor revisions, major revisions).
 - A list of peer reviewers has been published as part of the final SCS outputs. 97% of reviewers agreed to have their name published, while 3% requested to remain anonymous.
- 4. Minimise the potential for bias in reviewing outputs and synthesis.**
 - Each evidence synthesis had a minimum of two reviewers, one with GBR-relevant expertise, and a second 'external' reviewer (i.e., international or from elsewhere in Australia).

- Each evidence synthesis had a Lead and Second Editor who were responsible for checking the reviews had been adequately addressed.
 - All reviewers were required to complete a peer review form which included standard questions about the quality, rigour and content of the material, and asked to provide a recommendation (i.e., accept, minor revisions, major revisions).
 - Authors were required to respond to all reviewer comments and document revisions.
 - For the 2022 SCS **Conclusions** and **Summary** documents, eminent reviewers were asked to ensure a clear line of sight between the evidence presented in the Summary and the high-level Conclusions and to check that no new material had been introduced.
- 5. Assess and present levels of confidence in the evidence.**
- The underlying purpose of the peer review process is to provide confidence in the robustness, reliability, accuracy and credibility of the 2022 SCS outputs.
 - Each of the primary outputs was assessed by a minimum of two reviewers, the Editorial Board and the ISP.
- 6. Ensure inclusive, genuine and timely engagement with end users, stakeholders, and audiences.**
- Updates on the peer review process were provided through Project Updates published on the 2022 SCS social engagement platform and via mailing lists.
- 7. Improve accessibility to the science underpinning the SCS.**
- Eminent reviewers of the **Conclusions** were asked to assess if the language was suitable for a non-technical audience.
 - As part of the peer review process, either the Editorial Board, peer reviewers and/or ISP were asked to provide assurance that there was a clear line of sight between the different outputs. For example, the Lead and Second Editors for each evidence synthesis were asked to check that the high-level Evidence Statements were supported by the evidence base.

2. Approach to peer review process

2.1 Stages of the 2022 SCS requiring peer review

Three stages of the 2022 SCS project required formal peer review by independent experts.

1. **Methods** for synthesising and evaluating peer reviewed science papers/reports. The approach to peer review of the Methods is described in Pineda et al. (2024).
2. **Synthesis of evidence** for each of the 30 questions including a high-level Evidence Statement outlining main findings.
3. The **Summary** and **Conclusions** documents combining key findings of significance from the synthesis of evidence into broader themes and overarching conclusions.

The major stages of the peer review process for the primary outputs of the 2022 SCS are shown Figure 2.

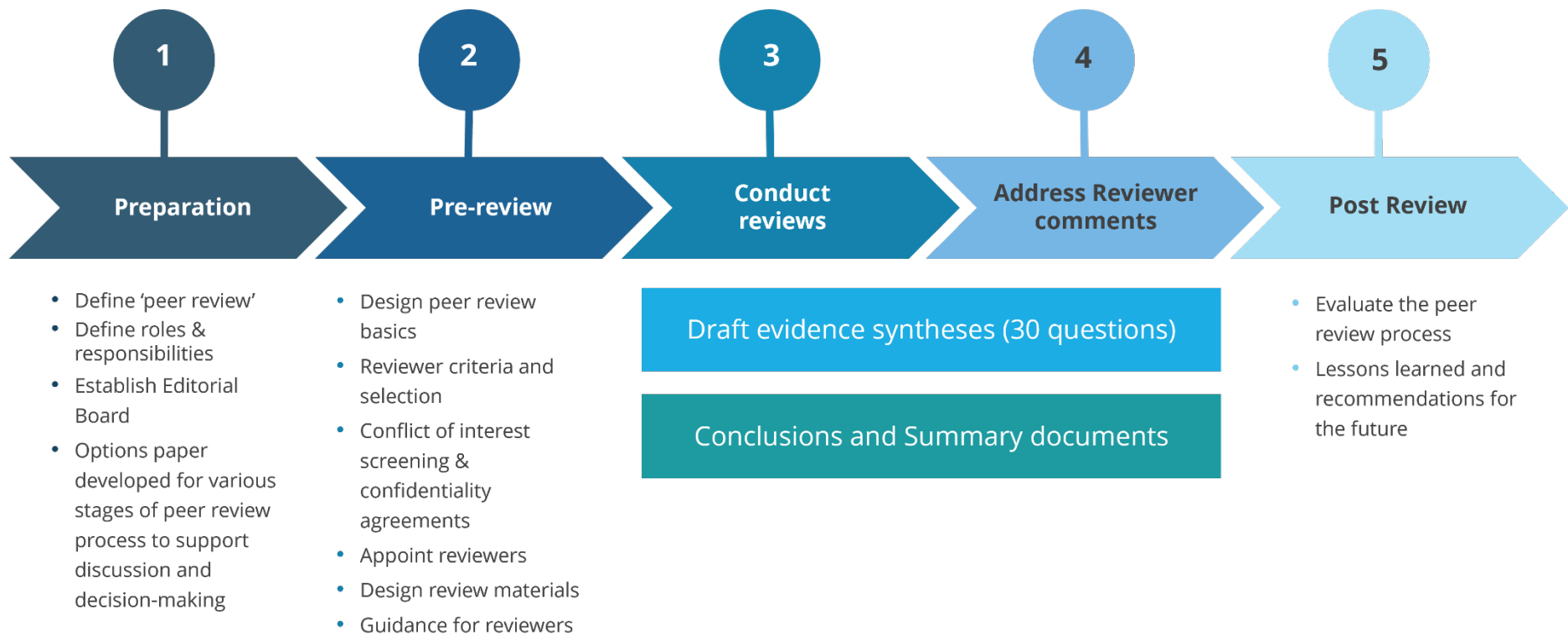


Figure 2. Stages of the peer review process for the three primary outputs of the 2022 SCS.

2.2 Peer review options paper

A peer review options paper was produced by the SCS Coordination Team (led by C₂O Consulting who were the project lead for the 2022 SCS) to act as a conduit to initiate discussions about the peer review process for the 2022 SCS. The paper outlined the stages requiring peer review and identified a number of topics that needed to be discussed and resolved to ensure that the peer review process aligned with the 2022 SCS guiding principles. These discussion topics included:

- Roles and responsibilities
- Reviewer criteria and selection
- Structure of peer review
- Format for completing peer reviews
- Guidance for reviewers
- Guidance for authors about expectations when addressing reviews
- Quality assurance checks
- Timelines
- Compensation / Honorarium for reviewers
- Other considerations including publishing the names of reviewers.

The peer review options paper was presented to both the ISP and IEP during meetings held in early 2022. During these meetings, and following discussions with Australia's Chief Scientist, it was agreed that an independent Editorial Board should be established to manage the peer review process for the primary outputs of the 2022 SCS (i.e., synthesis of evidence, summary and conclusions).

2.3 Roles & responsibilities in the peer review process

The following individuals or groups were involved in the 2022 SCS peer review process:

- Editorial Board
- Australia's Chief Scientist
- SCS Coordination Team
- Independent expert reviewers
- ISP and IEP

2.3.1 Editorial Board

The Editorial Board was responsible for:

- Providing independent and objective oversight for all phases of the peer review process, including the review of the 30 evidence syntheses and eminent expert review of the Conclusions and Summary documents.
- Ensuring that the peer review process aligned with the guiding principles for the 2022 SCS.
- Ensuring that the peer review process met best practice standards.
- Ensuring transparent documentation of all Editorial Board decisions.
- Discussing and advising on approaches to source Reviewers.
- Deciding on criteria to assess potential Reviewers.
- Reviewing and approving peer review templates and guidance documents.
- Assigning potential reviewers to questions.
- Inviting and appointing reviewers following the screening process for any COIs.
- Assessing whether peer reviewer comments had been adequately addressed by authors.
- Acting as the point of contact for any peer review related issues that arose.
- Final sign off of the primary outputs following peer review.

In addition, **the Editor-in-Chief:**

- Provided leadership to the Editorial Board and chaired meetings.

- Represented the Editorial Board at high-level meetings (e.g., attending ISP meetings, briefings with Australia’s Chief Scientist).

2.3.2 Australia’s Chief Scientist

Australia’s Chief Scientist supported the process by:

- Providing advice on the establishment of the Editorial Board and endorsing the Editorial Board member appointments.
- Providing advice on the peer review process and identifying additional opportunities to strengthen the approach and increase stakeholder confidence in the rigour and credibility of peer review.
- Approaching potential eminent reviewers for the peer review of the Conclusions and Summary following the identification of suitable candidates by the Editorial Board.

2.3.3 SCS Coordination Team

The SCS Coordination Team facilitated and coordinated all aspects of the peer review process under the direction of the Editorial Board. The SCS Coordination Team **did not** make decisions regarding the process. Specifically, the SCS Coordination Team:

- Supported the design and development of all draft peer review materials under the guidance of the Editorial Board.
- Provided secretariat support and coordination during Editorial Board meetings.
- Coordinated and documented the process for sourcing and assessing Reviewers.
- Recorded COI declarations in the 2022 SCS COI Register and sought advice and agreement about how to proceed from the Editorial Board and/or Contract Managers when potential, perceived or actual COIs were identified.
- Managed a Peer Review Register to track reviews and the status of evidence syntheses.
- Issued materials and follow up reminders to reviewers.
- Provided quality assurance checks of author responses and revisions and flagged any areas of concern to Lead and Second Editors.
- Consolidated peer reviews for each evidence synthesis and sent to Lead and Second Editors.

2.3.4 Independent Peer Reviewers

- In total, 66 independent national and international peer reviewers were appointed to provide quality assurance of the 2022 SCS primary outputs by giving objective, impartial, high-quality, and constructive feedback.

2.3.5 ISP and IEP

The ISP had a technical review role in several areas because of their specialist expertise in water quality and topics of direct relevance to the 2022 SCS. These included:

- Final endorsement of the 30 syntheses of evidence, following the conclusion of the peer review process.
- Checking for clear line of sight between the Summary and the 30 syntheses of evidence.
- Technical review and endorsement of the Conclusions and Summary documents prior to formal independent eminent expert review.

IEP provided advice when requested and were kept informed about the peer review process.

3. Editorial Board

3.1 Approach

The establishment of a 2022 SCS Editorial Board, similar to those used in indexed scientific journals, was recommended and/or supported by Australia's Chief Scientist, the ISP and IEP. The recommendation was that the Editorial Board should have 5–12 members, comprising one Editor-in-Chief and a number of managing editors. It was also agreed that nominations could be sought from ISP and IEP members, and other experts would be invited to apply for the role following a strict set of selection criteria.

3.2 Nominations and proposed process for selection

3.2.1 Editorial Board criteria

Following consultation with Australia's Chief Scientist, the following criteria were established to assess all nominations. Members **were required to meet Criteria 1 and 2** and at least **one of the remaining three criteria** (Criteria 3–5):

Essential

- **Criteria 1:** Availability to participate from October 2022 until September 2023, with the peak period for Editorial Board activity from October 2022 to June 2023.
- **Criteria 2:** Demonstrated independence from the role of the SCS Coordination Team (identified through completion of the Conflict of Interest Declaration).

At least one of these criteria

- **Criteria 3:** Current ISP or IEP member nominated through the Chairs of the advisory groups, with some expertise in the subject matter of the Scientific Consensus Statement.
- **Criteria 4:** Experience in academic Editorial Board work for indexed journals.
- **Criteria 5:** Experience in delivering and designing peer review processes including the ability to provide advice on the guiding principles for the peer review process, criteria for reviewer selection and approach for conducting reviews.

3.2.2 Process for identifying potential candidates

1. For the Editorial Board members **representing the ISP and IEP**, a process of self-nomination of up to two members from each panel was invited in July 2022.
2. For the Editorial Board members **external to ISP and IEP**, previous experience in similar editorial roles was considered a priority. Advice was sought from Australia's Chief Scientist for potential nominations that would meet the criteria (both domestic and international). A list of ten potential candidates was provided by Australia's Chief Scientist for consideration.
3. The potential candidates identified by Australia's Chief Scientist were screened by the SCS Coordination Team for suitability. In addition, the SCS Coordination Team completed an additional search for potential candidates by reviewing Editors from over 40 indexed journals (see *Appendix 2, Table 1*). To target the search to individuals that might have relevant subject expertise as well as Editorial Board experience, journals were selected if >10 papers cited in the 2017 SCS came from the journal. The search:
 - a. Focused mainly on Australian candidates because of practicalities of attending Editorial Board meetings but included some international candidates with strong subject matter expertise.
 - b. Looked for keywords relevant to SCS project (e.g., water quality, sediment, pesticides, toxicity, hydrology, runoff, nutrients, agriculture, catchment, aquatic systems etc.).

A total of 20 potential candidates were identified through this process (13 men, 7 women; 9 domestic and 11 international).

4. Experts identified in Steps 2 and 3 were approached by the SCS Coordination Team and invited to express an interest in joining the Editorial Board (see *Appendix 2*).

3.2.3 Editorial Board nominations – information requested

Individuals that were approached at Step 4 and interested in joining the Editorial Board were asked to provide the following information as part of their application:

- A completed Nomination Form which included questions around Criteria 1–5, if the nominee was interested in the Editor-in-Chief role, and a 300-word Statement of Interest for the position (see *Appendix 2*).
- A current CV including Editorial Board experience.
- A completed 2022 SCS COI Declaration.

The ISP and IEP Editorial Board members were also asked to provide additional information relevant to criteria 4 and 5 and complete the 2022 SCS COI Declaration form.

3.2.4 Assessment process for nominations

The following nominations were received:

- ISP/IEP nominees: Two members of the ISP and one member of the IEP were nominated for the Editorial Board.
- External nominees: Six applications were received from candidates suggested by Australia's Chief Scientist or identified through the journal searches for Editorial Board members. Two individuals declined the invitation to apply. No responses were received from the remaining individuals. Despite follow up, no international candidates or women submitted an expression of interest.

An Editorial Board Nominations Assessment spreadsheet was created by the SCS Coordination Team to formally assess nominations (see Table 1). As nominations were required to meet Criteria 1 & 2 or Criteria 3 to be considered eligible, these were not scored.

COI Declarations were assessed by the SCS Coordination Team following the 2022 SCS COI Policy. Any potential or perceived COIs were assessed against the 2022 SCS COI Policy to determine whether they could be mitigated. If the COI could not be mitigated, the application was not progressed.

Two members of the SCS Coordination Team assessed each nominee against the selection criteria. All nominees satisfied the essential criteria by confirming they were available for the required period of the Editorial Board and provided completed COI Declaration forms for assessment around independence from the SCS Coordination Team's role.

Deciding how to divide the questions among the Editorial Board members was determined to be part of the Editorial Board's role. However, it was agreed that it was important to ensure the Board members covered a breadth of subject matter expertise relevant to the 2022 SCS. Therefore, a matrix identifying each nominee's expertise by the 2022 SCS Themes was created to ensure that the final selection of nominees covered the full range of questions and/or Themes within the 2022 SCS.

Following the initial assessment, the SCS Coordination Team submitted the details of the assessment process to the DCCEEW and DESI contract managers to note and to provide advice on the COI assessments in accordance with the COI policy as required.

Once the overall process had been reviewed and accepted by contract managers as meeting the guiding principles, the list of suitable nominations, along with the assessment information was

provided to Australia's Chief Scientist to endorse the process and the proposed Editorial Board appointments.

Table 1. Assessment criteria for Editorial Board nominations.

Eligibility criteria	Requirement	Assessment
Criteria 1 - Available	Yes	
Criteria 2 - Independent	Yes	Any potential or perceived COIs were assessed against the COI policy to determine whether they could be mitigated. If the COI could not be mitigated, the applicant was assessed as not meeting the independence criteria and therefore their application was not progressed.
Criteria 3 - ISP or IEP		Nominated by ISP or IEP to represent Panel.
Evaluation criteria		
Criteria 4 - Editorial Board experience		
<i>Primary score</i>	1	Limited - The nominee has limited experience (≤ 2 years and/or < 2 journals) serving on Editorial Boards.
	2	Preferred - The nominee has some experience in Editorial roles (> 2 years and/or 2-4 journals).
	3	Outstanding - The nominee has ≥ 5 years' experience in Editorial roles and has been in editorial roles with ≥ 5 journals (including guest editor, special editor etc.).
Criteria 5 - Peer review design		
<i>Secondary score</i>	1	Limited - The nominee provides little evidence that they have been involved in peer review design except participation in Editorial Board.
	2	Preferred - The nominee provides some evidence that they have been involved in peer review design.
	3	Outstanding - The nominee provides clear evidence that they have been involved in peer review design.
Additional considerations (not scored)		
Expertise		Experience in Editorial Board roles is directly relevant to scope of SCS.
		Expertise is related to several SCS topics.
		Expertise fills a gap in SCS topics that would otherwise not be filled by other members.

3.2.5 Assessment Outcomes

Editorial Board

Based on the SCS Coordination Team’s combined assessment of the external nominees, three nominees were scored as ‘very suitable’, and one nominee was scored as ‘suitable’. Each of the four prospective candidates had a different set of skills, expertise and experience deemed valuable to provide a rounded perspective.

While the ISP/IEP nominees were not required to meet Criteria 4 and 5 due to their role in the panels and extensive and relevant expertise, they were requested to respond to these criteria for completeness of the process. Following assessment of the COI Declarations, all ISP/IEP nominees were accepted and offered valuable experience relevant to the role of the Editorial Board.

Editor-in-Chief selection process

There were no additional criteria specified for the Editor-in-Chief role, however, independence from participants in the SCS was a critical consideration. Suitability was reviewed in the context of the additional information they provided in relation to Criteria 4 and 5, potential COIs in this specific context (i.e., independence) and relevant experience.

All Editorial Board nominees were asked to indicate their interest in the role when submitting their nominations. A meeting was held between the SCS Coordination Team and Australia’s Chief Scientist to discuss the nominations. From the selection, the IEP member was identified as unlikely to have any conflicts with Lead Authors or potential peer reviewers as had limited current involvement in GBR water quality research. The IEP member had extensive experience running Boards which was considered useful for this role, but less experience editorially. Therefore, it was agreed that they would be the preferred candidate as Editor-in-Chief, with the remaining nominations occupying the role of Editors given their substantial experience as Editors for indexed journals.

The following appointments were agreed with Australia’s Chief Scientist following final COI checks through DCCEEW and the government-appointed probity advisors for the project:

- Editor in Chief: Dr Russell Reichelt.
- Editors: Professor Cameron Holley, Emeritus Professor Tony Jakeman, Professor Stuart Bunn, Associate Professor Geoff MacFarlane, Professor John Rolfe (ISP), and Dr Peter Doherty (ISP).

3.3 Editorial Board operations

The Editorial Board convened in formal (online) meetings on seven occasions during the peer review process. At each meeting, standard agenda items were tabled including checking for any new potential COIs, revisiting actions arising and formally signing off previous meeting minutes. Each Editorial Board meeting focused on different aspects of the initial peer review options paper.

Table 2. Agenda items for each 2022 SCS Editorial Board meeting.

Meeting date	Agenda items
7 December 2022	<ul style="list-style-type: none">• Introductions.• Introduction to the SCS and peer review process.• Proposed schedule of work.
16 December 2022	<ul style="list-style-type: none">• Finalise the Editorial Board Terms of Reference.• Number of reviewers required for the 30 evidence syntheses.• Dividing the external peer review of the 30 evidence syntheses among the Editors.• Eligibility criteria for reviewers.

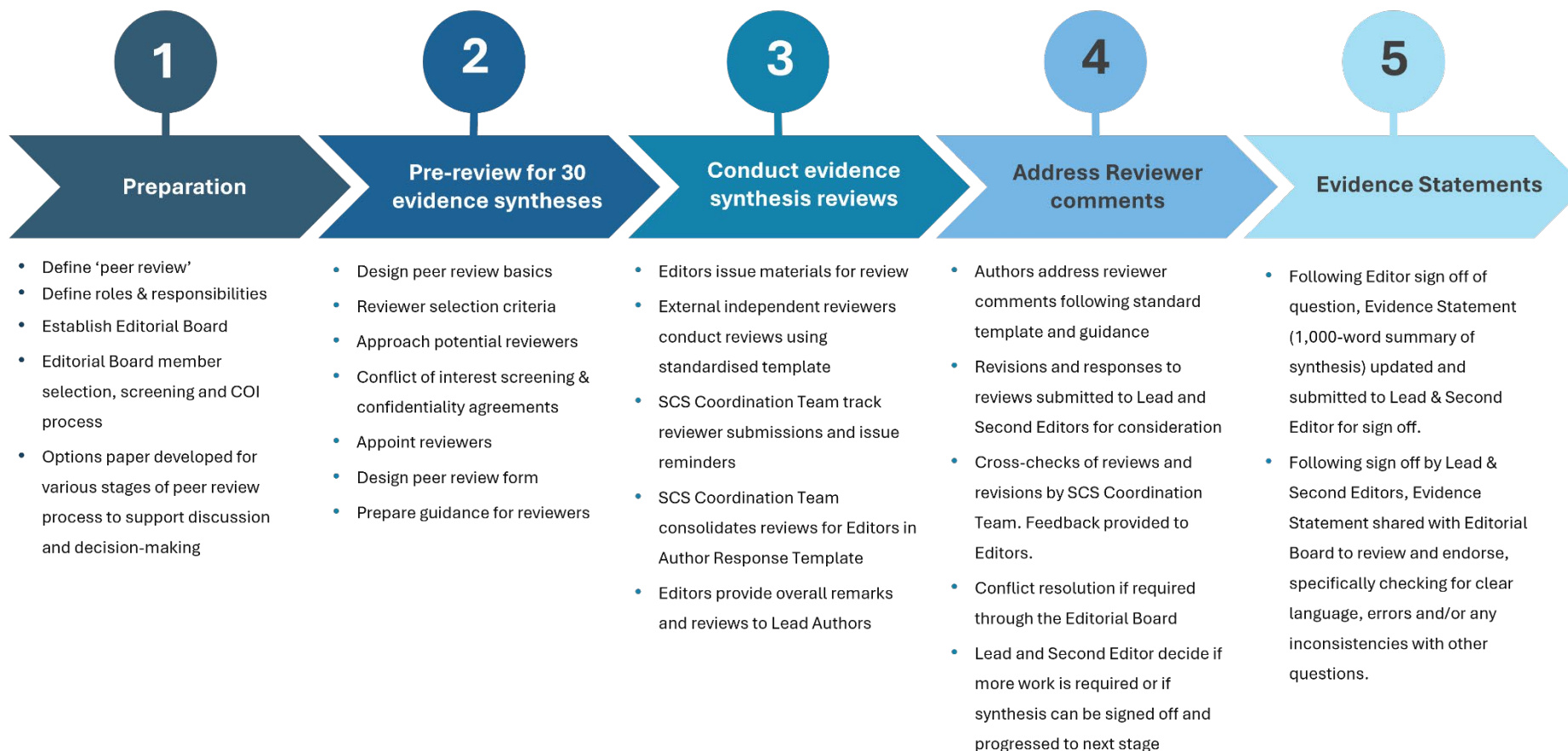
Meeting date	Agenda items
27 January 2023	<ul style="list-style-type: none"> • COI Management Plans. • Finalise criteria and selection process for the peer reviewers of the 30 evidence syntheses. • Pre-review quality assurance checks. • Design of peer review materials for the 30 evidence syntheses.
28 February 2023	<ul style="list-style-type: none"> • Honorarium for synthesis of evidence reviewers. • Process to approach potential reviewers and accompanying materials. • Agree list of potential reviewers for each question and establish priority order.
27 March 2023	<ul style="list-style-type: none"> • Responses from reviewers to invitation to review. • Design of peer review template for 30 evidence syntheses. • Approach to managing the review process for the 30 evidence syntheses including roles of the Editor-in-Chief, Editors and SCS Coordination Team.
17 August 2023	<ul style="list-style-type: none"> • Sign off of completed evidence syntheses. • Review process for eminent expert review of the Conclusions and Summary documents including expertise required, selection criteria, number of reviewers and geographical location, and honorarium.
1 March 2024	<ul style="list-style-type: none"> • Formal closure of the 2022 SCS peer review process. • Evaluation of peer review process.

4. Peer review process for the 2022 SCS syntheses of evidence

4.1 Summary of process

The formal peer review of the 30 syntheses of evidence involved **63 external and independent expert reviewers**. Each question had a minimum of two reviewers who were screened for COIs, one with GBR-relevant expertise, and a second ‘external’ reviewer (i.e., international or from elsewhere in Australia). Reviewers completed a structured peer review form which included questions about the quality, rigour and content of the synthesis, and asked reviewers to provide a recommendation (i.e., accept, minor revisions, major revisions). A **Lead and Second Editor** endorsed the synthesis once question authors had adequately addressed peer reviewer feedback. Lead and Second Editors were also asked to provide assurance that there was a clear line of sight between the body of evidence and the high-level Evidence Statement to ensure that all Statements were supported by the evidence base. The Editorial Board then collectively checked the Evidence Statements for use of non-technical language, clarity and for any inconsistencies among questions. Once satisfied with the Evidence Statements, the Editorial Board formally signed off the synthesis of evidence.

Figure 3 shows the major phases of the peer review process for the syntheses of evidence.



Peer review process for the 30 evidence syntheses (63 reviewers)

Figure 3. Phases of the 2022 SCS peer review process for the 30 syntheses of evidence.

4.2 Reviewers

4.2.1 Number of reviewers and source

The synthesis of evidence included 30 questions grouped into eight themes covering values, condition and drivers of health of the GBR, sediments and particulate nutrients, dissolved nutrients, pesticides, other pollutants, human dimensions of water quality management, and future directions and emerging science. Such diversity required a considerable pool of subject matter experts to ensure that the technical content of the syntheses was accurate, comprehensive, and with minimal evidence of any author bias.

The Editorial Board discussed several options about how the reviews could be organised. This included:

- Reviewers for every question with no overlap.
- Reviewers choose how many and what questions to review.
- Reviewers clustered by themes.
- Reviewers clustered by topics (e.g., management practice questions).

The Editorial Board weighed up the benefits and problems with each option and agreed that **each question should have 2–3 reviewers with no overlap in reviewers between questions**. In addition, the Editorial Board agreed that each question would be reviewed by **at least one subject matter expert with GBR expertise and one external to the GBR (domestic or international)**. This approach was advocated to widen participation, demonstrate independence, minimise risk of bias, and gain insights from subject matter experts working in other regions. Three questions were identified as potentially contentious, and for these, following ISP advice, the Board agreed they should have three reviewers. The questions requiring three reviewers were Question 3.6 on effectiveness of gully restoration works, Question 4.3 on crown-of-thorns starfish and Question 4.7 on the efficacy of wetlands in improving water quality. It was agreed that in total, **63 reviewers** were needed to review the synthesis of evidence, 27 questions with 2 reviewers, and 3 questions with 3 reviewers.

4.2.2 Closed versus open reviewer identities

The traditional form of peer review that most scientists are familiar with is a single-blind or double-blind review. A single-blind review is where the reviewer is aware of the authors names, but the authors do not know the reviewers' identities. Double-blind reviews happen when both authors and reviewers are unaware of each other's identities. For the 2022 SCS process, the authors' names needed to be shared with prospective reviewers to manage any potential, perceived or actual COIs. Following discussions by the Editorial Board and supported by Australia's Chief Scientist, it was agreed that reviewers would remain anonymous during the peer review process. However, given the important contribution that reviewers would make to improving the quality and content of products, combined with the desire to increase transparency, it was agreed that reviewers should be given the opportunity to have their names published in the final 2022 SCS products in a list of reviewers.

Of the 63 reviewers ultimately appointed to review the 30 syntheses of evidence, only two requested anonymity.

4.2.3 Reviewer selection criteria and eligibility

Finding suitable reviewers with relevant expertise was considered important for the 2022 SCS process, particularly in terms of building trust among the wide range of audiences that have an interest in the final outputs. The Editorial Board agreed that prospective reviewers would need to meet a transparent set of eligibility criteria including subject matter expertise, experience, independence and the ability to deliver timely reviews.

The eligibility criteria shown in Table 3 were agreed by the Editorial Board to minimise any risks of potential COIs and to ensure prospective reviewers had appropriate subject matter expertise. If

candidates flagged any of the criteria relating to independence, then they were not eligible to become a reviewer. Three criteria were pre-screened in advance before prospective reviewers were approached. These were whether the reviewer had demonstrated expertise in subject, if they worked for the same organisation as the Lead Author, and whether they were already involved in some capacity with the 2022 SCS (e.g., committee, contributor to different question etc.).

To mitigate any COIs between Editorial Board members and reviewers, two additional exclusion criteria were:

1. Reviewers could not be currently collaborating with the Lead Editor.
2. Reviewers could not be related to or have a close personal relationship with the Lead Editor.

Table 3. Eligibility criteria for prospective synthesis of evidence reviewers.

Eligibility criteria	Response	Outcome
Demonstrated expertise in subject		
1. Published in field, works in field, widely accepted expert or knowledgeable in field.	No	Not eligible
Independence from Authors, Editorial Board and SCS process		
Same organisation	Yes	To be assessed by Editorial Board
Active supervisor, line manager or frequent collaborator.	Yes	Not eligible
Currently collaborating with Author(s) or Lead Editor.	Yes	Not eligible
Collaborated or published with Lead Author(s) in the last two years.	Yes	Not eligible
Related to or has a close personal relationship with Author(s) or Editorial Board members.	Yes	Not eligible
Is in any other position that would impact their ability to carry out an impartial review of the Author's work.	Yes	Not eligible
Is already involved in the SCS process (e.g., Authors, SCS Coordination Team, ISP, IEP).	Yes	Not eligible
Time and engagement		
Commitment to review on time and following guidance and structured review template provided by the Editorial Board.	No	Not eligible

There was one exception made to the criterion of 'Collaborated or published with Lead Author in the last two years'. This exception was for Question 4.3 on crown-of-thorns starfish (COTS). The Lead Author for that question had co-authored a 2021 publication on COTS knowledge gaps which involved a survey of 38 COTS experts, all of whom were listed as co-authors². Because of this publication, it was challenging to find three reviewers with subject matter expertise that had not published with the Lead Author in the last two years. Therefore, the decision was taken that

² Pratchett, M.S., Caballes, C.F., Cvitanovic, C., Raymundo, M.L., Babcock, R.C., Bonin, M.C., Bozec, Y.M., Burn, D., Byrne, M., Castro-Sanguino, C. and Chen, C.C., 2021. Knowledge gaps in the biology, ecology, and management of the Pacific crown-of-thorns sea star *Acanthaster* sp. on Australia's Great Barrier Reef. *The Biological Bulletin*, 241(3), pp.330-346.

individuals could be approached to review Question 4.3 as long as they had not published any other material with the Lead Author in the last two years apart from the 2021 knowledge gaps publication.

4.2.4 Developing a list of prospective synthesis of evidence reviewers

Given the large number of reviewers that were required to meet the needs of the 2022 SCS, a number of approaches were used to source reviewers:

- Similar to the approach used to identify potential Editorial Board members, Editors and recent publications of relevant journals were screened to identify domestic and international researchers working and publishing in relevant fields.
- Editorial Board members were invited to nominate potential reviewers for questions for assessment.
- The 2022 SCS social engagement platform publicised that reviewers would be needed, and some individuals submitted their names for consideration.
- Authors **were not** allowed to nominate reviewers for their synthesis of evidence outputs. Although this is allowed and even encouraged in many indexed scientific journals, it was felt that such an approach could cause concern about potential risks for bias and therefore was considered unsuitable for the 2022 SCS.

The Editorial Board met on 28 February 2023 to discuss the compiled list of potential reviewers and assess their suitability before invitations were issued. At the meeting, the Board identified and agreed:

- 5–6 potential reviewers per synthesis of evidence. The list always included a mix of GBR, national and international candidates.
- Identified a priority order to approach the potential reviewers (starting with one GBR expert, and one national/international). Editors worked through the priority list for each question until sufficient reviewers had been appointed.
- If the initial list of reviewers for a question was exhausted before a sufficient number of reviewers had been appointed, the Lead and Second Editor would propose additional names for consideration to the Editorial Board. All Board members had to support the nominations before any invitations were issued.

4.2.5 Inviting and appointing synthesis of evidence reviewers

A standard email template was developed to invite potential synthesis of evidence reviewers to indicate their interest in becoming a reviewer (see *Appendix 3*; Table 4). Emails were issued from the Lead Editor for the question and were accompanied by a mandatory COI form based on the eligibility criteria outlined in section 4.2.2 (see *Appendix 4*).

Once reviewers had indicated their interest and returned the COI form, the SCS Coordination Team checked the forms for any COIs. As a result of the screening and the identification of actual, perceived or potential COIs, several prospective candidates were subsequently not appointed as reviewers. All information was recorded in a COI Register as well as a formal Peer Review Register which was maintained throughout the peer review process and used to track the progress and status of each synthesis of evidence.

Table 4. Process for approaching and appointing synthesis of evidence reviewers.

Step	Action	Responsibility	Information / materials required
1.	Invite priority candidates to express an interest in becoming a reviewer.	Lead Editors	Formal invitation from Lead Editor for each question. Email invite contained: <ul style="list-style-type: none"> • Brief overview of SCS. • Question and question summary. • Explanation of review process. • Honorarium information. • Eligibility criteria. • Time commitment required and timeframe of review process. • Confidentiality.
1a.	Select and invite further candidates depending on responses received from Step 1.	Lead Editors	Use reviewer list agreed by Editorial Board to identify further candidates to approach if initial choices were unsuccessful for any reason (e.g., no response, busy, COI etc.)
2.	Screen candidates for any COIs when completed forms are returned.	SCS Coordination Team	<ul style="list-style-type: none"> • Screen candidate responses for any potential, perceived or actual COIs. • Follow up on any COI concerns/queries. • SCS Coordination Team notify Lead Editor and candidates if not eligible.
3.	Finalise reviewers.	Lead & Second Editors	<ul style="list-style-type: none"> • Approve final appointments.

4.2.6 Honorarium for synthesis of evidence reviewers

The Editorial Board discussed whether reviewers should be offered an honorarium for conducting reviews, agreeing that careful consideration was required about how this might be perceived. Questions about potential issues of integrity associated with paying reviewers were discussed given that this is currently not standard protocol for indexed scientific journals. The Board also discussed the complexity of the syntheses of evidence compared to typical scientific journal articles, the need to meet project deadlines, the structured approach and detailed review expected of reviewers, along with the potential requirement for reviewers to revisit revisions to ensure comments had been adequately addressed. The Board agreed that the size of the syntheses of evidence and work involved was not dissimilar to the amount of work involved for external examiners of PhD theses³. Therefore, the Board agreed that a small honorarium (AUD\$500) should be offered in recognition of the valuable contribution reviewers would make to enhance the credibility and robustness of the evidence syntheses.

While an honorarium was offered to all reviewers, several reviewers, including those that worked for government organisations, declined the offer.

³ [Universities Australia's fees for external examiners](#)

4.3 Format of reviews

4.3.1 Structure of reviews

Reviewer feedback was a critical component of the quality assurance process for the 2022 SCS. However, the value of the feedback received would also depend on how reviewers were asked to structure their feedback. The Board discussed the three main types of structure that reviewers could use to provide feedback.

1. **Open structure:** No formal template or guidelines for reviewers to follow. This would give reviewers total flexibility on what aspects of the review they want to focus on. Open reviews are common in indexed journals with limited structure or guidance provided. However, open reviews can produce highly variable results because they are not bound by any structure.
2. **Semi-structured:** Template with a selection of focused questions and/or assessment criteria as well as some opportunities for open text. This approach would ensure a certain level of consistency across all reviews and allow some degree of comparison between reviewers. Providing some structure or guidelines about reviewing expectations has been shown to add value (Cobo et al., 2011; Horbach & Halffman, 2018) and can make it easier for the reviewer to complete the job asked of them. Reviewers can assess against a checklist or specific criteria and identify areas where there is ambiguity or other concerns (Moher, 2015). This option would also give reviewers the option to share additional thoughts about the synthesis that may not have been covered by the questions or assessment criteria. *[Note that this was the preferred option of the Australia's Chief Scientist as per feedback on 14 June 2022].*
3. **Structured:** A structured form or mandatory checklist with rigid assessment criteria. This would ensure comparability between reviewers but may risk missing valuable suggestions to improve the synthesis further.

4.3.2 Peer Review Form

Given the very structured and formal methods adopted for the 2022 SCS, the Editorial Board decided that a semi-structured review was appropriate. The Editorial Board agreed that the feedback should align where possible with the guiding principles for the project to provide assurances about the rigour, robustness and credibility of each synthesis of evidence. A series of mandatory questions were developed for reviewers to answer during their review (see *Appendix 5*). The questions were:

1. Is the Executive Summary clearly and concisely written in language that could be understood by non-experts? Are the key findings relevant and clearly communicated?
2. Is the Executive Summary an accurate reflection of the findings from the more detailed synthesis of evidence?
3. Does the Executive Summary contain any overgeneralisations or inappropriate extrapolations based on the evidence presented? For example, GBR-wide conclusion(s) from limited data.
4. Does the synthesis of evidence address the question?
5. Did you identify any potential instances of bias or personal opinions in the Authors reporting?
6. Is the background information sufficient to understand why this question is being addressed and the approach the Authors have taken to address the question?
7. Are the key findings appropriate for the evidence presented?
8. Have any key studies been missed?
9. Are statements adequately supported by citations and have references been appropriately cited?
10. Did you identify any instances where the interpretation or critical appraisal of specific literature was not correct?

11. Are multiple perspectives, or alternative theories, presented and discussed where appropriate?
12. Does the evidence appraisal accurately reflect the evidence base (e.g., relevance, diversity, consistency, confidence)? Refer to the Data Extraction & Appraisal spreadsheet.
13. Do the knowledge gaps align with the evidence presented?
14. The SCS will provide the evidence base that will be used by policy makers. Hence each Synthesis of Evidence must be neutral and evidence-based, but useable by policy makers. Do the implications for policy and management align with the evidence presented?
15. Have the key uncertainties and limitations of the evidence base been clearly identified and explained? If no, please explain the reason for your answer.
16. Do the Evidence Statements align with the Key findings?

Reviewers were asked to expand on these questions if they identified any concerns or areas of improvement. Reviewers were also invited to add any further remarks in a separate section of the form. Similar to scientific indexed journals, reviewers were asked to provide a recommendation for the synthesis – accept as is, minor revisions or major revisions.

4.3.3 Guidance for synthesis of evidence reviewers

The peer review form was accompanied by a guidance document for reviewers (see *Appendix 5*) developed by the Editorial Board. The guidance document contained:

- Background information about the SCS.
- An explanation about the methods used to address the 30 evidence syntheses.
- Description of the review materials and structure.
- How to complete the review.

4.4 Managing the reviews

In addition to deciding how to divide 30 syntheses of evidence among reviewers, the Editorial Board also considered how to divide the syntheses among the Editors. The Board agreed that **each question would have a Lead Editor who had some subject matter expertise, and a Second Editor for additional quality assurance**. Each of the six Editors acted in the Lead Editor role for five syntheses of evidence, and the Second Editor role for five syntheses of evidence. The Editor-in-Chief was an additional resource if any issues needed to be escalated, or if a third perspective was required for an evidence synthesis.

Lead Editors were responsible for issuing the materials to the reviewers. Materials were sent to reviewers following quality assurance checks by the SCS Coordination Team to ensure authors had completed all sections of the synthesis of evidence. Reviewers were given four weeks to complete their reviews. The SCS Coordination Team supported the Lead Editors by issuing regular reminders to reviewers until reviews were returned.

When reviews were returned, the SCS Coordination Team checked to ensure that the reviewer had addressed all mandatory assessment criteria, included appropriate citations to back up feedback where needed, and that the feedback was provided in a constructive, respectful manner.

4.5 Addressing the reviews

Equally as important as having a robust reviewer process that will stand up to scrutiny, the Board agreed that it was essential to have a transparent and structured process to ensure that Authors adequately addressed reviewers' comments. To support this, an Author Response Template (see *Appendix 6*) was designed by the Editorial Board. The SCS Coordination Team consolidated the reviews for each evidence synthesis and provided the consolidated reviews to the Lead and Second Editor. Similar to an indexed journal, Editors provided Authors with high-level remarks summarising the feedback from the reviewers and provided guidance for Authors where appropriate.

Authors were expected to respond to each comment and show where changes had been made to the synthesis. Note that reviews were anonymised, so authors did not know the identity of the reviewers. Authors were given four weeks to respond to the reviews. Authors returned their revised synthesis of evidence (track changes and clean versions) along with the responses to reviewers to the Lead Editor. The SCS Coordination Team cross-checked author responses against the original feedback to ensure that Authors had responded to all comments, and that the feedback had been incorporated where appropriate into the revised synthesis of evidence, as well as highlighting any potential concerns to the Lead Editor for consideration. Lead Editors were responsible for checking the revisions, with support from the Second Editor if required. Lead Editors could decide whether to endorse the synthesis of evidence, request further changes, or send the revised materials back to the reviewers for a second round of review.

Across the 63 reviewers, the recommendations were as follows:

- 3 accept
- 45 minor revisions
- 15 major revisions

Two syntheses of evidence underwent major structural changes following the feedback from reviewers. The Lead and Second Editors provided oversight for the revisions for one question, whereas for the second question, the revised synthesis of evidence was returned to reviewers for a second round of review before it was finalised.

4.6 Finalising the synthesis of evidence review process

Lead Editors were responsible for signing off on the synthesis of evidence following peer review. Once completed, the SCS Coordination Team worked with the authors to refine the Evidence Statement – a maximum 1,000-word summary of the main findings from the synthesis designed to be understood by an audience with limited technical knowledge. Lead and Second Editors were asked to review and endorse the Evidence Statement. Once endorsed, the Evidence Statement was provided to the Editorial Board for final sign off. For this step, the Editorial Board was asked to consider whether there were any:

- Inconsistencies with other questions
- Obvious errors
- Major concerns with the Statement.

If any issues were identified at this stage by the Editorial Board, the Lead Editors worked with the Authors, supported by the SCS Coordination Team to resolve those issues until agreement was reached and the Evidence Statement was signed off by the Board. This was the final step in the peer review process for the syntheses of evidence.

5. Eminent reviews

5.1 Summary of process

In addition to the 30 syntheses of evidence, the 2022 SCS had two further outputs that were developed as part of a formal consensus process involving a number of authors and experts.

- The 2022 SCS Conclusions
- The 2022 SCS Summary

These two outputs were derived from the evidence base provided by the syntheses of evidence, with the Summary containing Theme-level insights and summaries, and the Conclusions containing high-level conclusions that covered the breadth of the evidence base. Given the diversity of topics that were covered in these two outputs, eminent reviewers were required who could bring considerable expertise and high-level experience to determine whether the products were fit for

purpose. It was agreed that three eminent reviewers should be appointed, with at least one international eminent reviewer who had no involvement in GBR research or management. Members of the Editorial Board provided potential nominations for eminent reviewers, and these were subsequently ranked by the Board to prioritise candidates based on pre-determined selection criteria. A meeting was subsequently held between the Editor-in-Chief and Australia's Chief Scientist to discuss potential eminent reviewers and finalise the list of candidates. Given the importance of the role of eminent reviewers, Australia's Chief Scientist approached prospective candidates to gauge their interest. If interested, candidates were asked to complete a prospective eminent reviewer form (see *Appendix 7*) to screen for any COIs prior to their formal appointment. Three eminent reviewers were appointed, one with experience of GBR issues, one national and working outside of the GBR, and a third international reviewer with an agricultural background. Eminent reviewers were given four weeks to complete their reviews. The SCS Coordination Team were responsible for addressing the eminent reviews in a similar manner to the synthesis of evidence review process. The Editor-in-Chief and a supporting Editor checked the preliminary revisions, and once satisfied, these documents were shared with the Lead Authors of the 30 evidence syntheses for formal endorsement. Following this step, the Editorial Board met to discuss the eminent review process and formally sign off this stage. The process is summarised in Figure 4.

5.2 Role of the 2022 SCS eminent reviewers

Given the considerable amount of technical review and oversight that had occurred during earlier stages of the 2022 SCS, the primary role of the eminent reviewers was to ensure that the Conclusions and Summary documents:

- Contained sufficient information to understand how they were developed.
- Were clear, concise and used neutral unbiased language.
- Did not contain any obvious errors or inconsistencies.

In addition, eminent reviewers were asked to independently check that there was a clear line of sight from the Summary to the Conclusions. Confidence that there is transparency in how the evidence presented in the Summary informed the Conclusions was critically important to ensure that no new material had unintentionally been introduced in the Conclusions that has not been covered by the underlying evidence base.

Eminent reviewers **were asked** to consider the following aspects:

Conclusions and Summary documents

- Were the introductory sections of the Conclusions and Summary sufficiently clear to give the reader an adequate understanding of the context and purpose of the SCS?
- Was enough information presented in the Conclusions and Summary to understand how the content had been derived? Had the process to develop the Conclusions and Summary been clearly described?
- Could the Conclusions and Summary be read and understood as standalone documents?
- Was there any perception of bias from reading the Conclusions and/or the Summary? Were the materials written using neutral, unbiased language?
- Were there any suggestions for improving the clarity of the overall messages in the Conclusions and Summary documents?
- Was the terminology and language used suitable for a non-technical reader?

Conclusions only

- Were the Overarching Conclusions and Theme Concluding Statements clearly articulated? If not, eminent reviewers were asked to identify specific wording that could be improved.

Between the Conclusions and Summary documents

- Were there: 1) clear lines of sight from the Theme Summary Statements in the Summary to the Conclusions; 2) signs that new material had been introduced in the Conclusions that had not been covered in the Summary; 3) any prominent messages from the Summary that had been missed in the Conclusions; and 4) any contradictory statements within or between the Conclusions and Summary?

Eminent reviewers **were not asked to:**

- Comment on the 2022 SCS process. Input, advice and review was provided throughout the process by the ISP, IEP, Australia’s Chief Scientist, expert working groups, external peer reviewers, and Contract Managers.
- Comment on individual evidence syntheses or Evidence Statements (also presented as part of the Summary document). These had been externally peer reviewed by 2–3 independent external reviewers (as per section 4), endorsed by two Editors, signed off by the 2022 SCS Editorial Board, read by at least one ISP member and endorsed by the ISP.
- Spend extensive time wordsmithing the Theme Concluding Statements in the Conclusions or the Theme Summary Statements in the Summary other than addressing points of clarity noted above. These Statements were reached by convergence and consensus among 35 experts, and reviewed by the ISP.

Eminent reviewers were given access to the synthesis of evidence materials as well as key process documents such as the Synthesis of Evidence methods, but they were not expected to review or provide comments on those materials.

5.3 Eminent reviewer criteria and considerations

As the 2022 SCS covers a wide range of subjects, reviewers needed to come from diverse backgrounds to maximise the opportunities to refine the materials.

The following **types of eminent reviewers** were considered by the Editorial Board:

1. Reviewers with GBR expertise who had not been involved in any aspect of the 2022 SCS. This type of reviewer was identified as necessary by the Editorial Board following the Synthesis of Evidence reviews. Editors noted that some feedback from international reviewers may have been constrained by their limited understanding of the nuances of the GBR policy, governance and/or environmental context.
2. Australian ‘non-GBR’ reviewer. Independent experts with relevant experience, strategic oversight and some contextual background for the scope of the SCS, particularly valuable if working at the interface between science and policy within Australia.
3. International reviewer. These reviewers should be less familiar with the GBR context and therefore more likely to identify areas where more background or greater explanation is needed. It was also considered valuable to the process to seek expertise outside of the Australian science community, and to bring a global lens to the review.

Criteria for eminent reviewers (E = Essential, D = Desirable)

1. A senior figure/position of authority with a reputation for quality and excellence. [E]
2. Agreement to be publicly acknowledged as an eminent reviewer. [E]
3. Is not related to or has a close personal relationship with author(s), Editorial Board members or the SCS Coordination Team. [E]
4. Is not in any position that would impact their ability to carry out an impartial review of the work. [E]
5. Commitment to review on time, following any guidelines or instructions provided by the Editorial Board. [E]
6. Experience working at the interface between science and policy. [D]

7. Evidence of strategic or program level thinking. [D]
8. Experience or involvement in other high-level evidence-based environmental projects or synthesis reports (e.g., State of Environment, IPCC). [D]
9. Multidisciplinary background. [D]

5.4 2022 SCS eminent reviewer honorarium

Given the important role and contribution that it was expected eminent reviewers would make to the quality and integrity of the process, eminent reviewers were offered an honorarium of \$2,000 AUD for their service.

5.5 Process for identifying and appointing 2022 SCS eminent reviewers

Potential eminent reviewer names were sourced from:

- Nominations by Editorial Board members. Board members provided a brief overview of the potential candidate and justification for the nomination.
- Internet searches for leads, authors and/or eminent reviewers for large national and international environmental reports (e.g., IPCC, OSPAR Quality Status Reports, Australia State of Environment Report). This was led by the SCS Coordination Team and names along with supporting information provided to the Editorial Board for consideration.
- Senior staff from major national and international science and environmental institutions. This was led by the SCS Coordination Team and names and supporting information provided to the Editorial Board for consideration.

The Editorial Board ranked the nominations based on the selection criteria. The Editor-in-Chief subsequently met with Australia's Chief Scientist to discuss the nominations and finalise the list. Australia's Chief Scientist approached prospective candidates to seek their interest in becoming an eminent reviewer, subject to consideration of the selection criteria (with administrative support from the SCS Coordination Team). Prospective candidates were asked to complete a short form addressing the criteria including a COI Declaration and Confidentiality Deed Poll before proceeding with formal selection and appointment (see *Appendix 7*). The process continued until three individuals met the selection criteria and accepted the role.

5.6 Format of reviews

5.6.1 Eminent reviewer form

Similar to the synthesis of evidence, the Editorial Board decided that a semi-structured review was appropriate to ensure eminent reviewers focused on aspects that were central to providing assurance about the products as well as providing consistency among the reviews. Where possible, feedback was sought that aligned with the guiding principles. A series of mandatory questions were developed for eminent reviewers to answer during their review (see *Appendix 8*). The questions were:

Conclusions

- Is the introductory section of the Conclusions sufficiently clear to give the reader an adequate understanding of the context and purpose of the SCS?
- Is enough information presented in the Conclusions to understand how the content has been derived? Has the process to develop the Conclusions been clearly described?
- Can the Conclusions be read and understood as a standalone document?
- Are the Overarching Conclusions and Theme Concluding Statements clearly articulated? Are there any suggestions for improving the clarity of the messages? Reviewers were asked to identify specific wording that could be improved, noting that any proposed adjustments

would be considered in the context of the technical intent and sensitivity of the specific wording of the content.

- Is the terminology and language used suitable for a non-technical reader?
- Is there any perception of bias from reading the Conclusions? Have the materials been written using neutral, unbiased language?

Summary

- Is the introductory section of the Summary sufficiently clear to give the reader an adequate understanding of the context and purpose of the SCS?
- Is enough information presented in the Summary to understand how the content has been derived? Has the process to develop the Summary been clearly described?
- Can the Summary be read and understood as a standalone document?
- Is there any perception of bias from reading the Summary? Have the materials been written using neutral, unbiased language?
- Are there any suggestions for improving the clarity of the overall messages in the Summary?
- Is the terminology and language used suitable for a reader with some technical knowledge?

Between the Conclusions and Summary

- Is there a clear line of sight from the Summary to the Conclusions? *If no, please explain the reason for your answer and provide examples.*
- Has any new material been introduced in the Conclusions that was not covered in the Summary? *If yes, please explain the reason for your answer and provide examples.*
- Are there any prominent messages from the Summary that have been missed in the Conclusions? *If yes, please explain the reason for your answer and provide examples.*
- Are there any contradictory statements within or between the Conclusions and Summary?

Reviewers were also given space to provide further comments on the materials. Similar to scientific indexed journals, the eminent reviewers were asked to provide a recommendation for the synthesis – accept as is, minor revisions or major revisions.

5.6.2 Guidance for eminent reviewers

The eminent reviewer form was accompanied by an extensive guidance document for reviewers (see *Appendix 8*) developed by the Editorial Board. The guidance document contained:

- Background information about the SCS.
- The 2022 SCS development process including the synthesis of evidence methods, consensus process and review steps that had taken place prior to the eminent review stage.
- The role of the eminent reviewers.
- Guidance on how to complete the review.
- Next steps following the submission of their review.

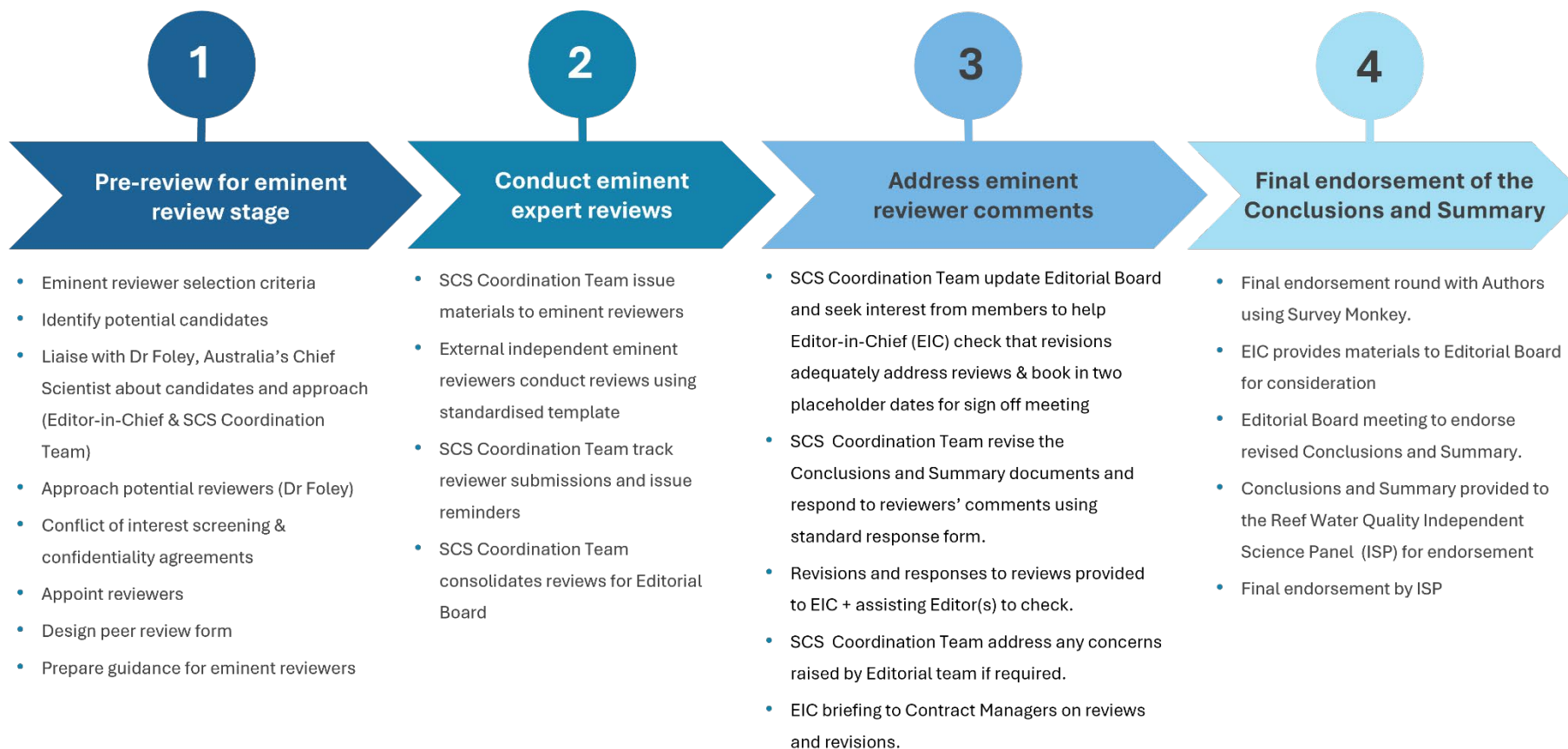
5.7 Managing the reviews

The Editor-in-Chief had overall responsibility for managing the eminent reviews with support from other Editorial Board members if required (Figure 5). The Editor-in-Chief was supported by a member of the SCS Coordination Team who issued reminders to eminent reviewers and consolidated the reviews once all three had been received, as well as adding the reviewer feedback to the Conclusions and Summary documents for ease of checking revisions and responses.

5.8 Addressing the reviews

The SCS Coordination Team were the drafting team for the Conclusions and Summary and therefore responsible for addressing the eminent reviewer feedback. Revisions and responses to eminent

reviewers were recorded in a formal response template (see *Appendix 9*) and using track changes in the Conclusions and Summary documents to ensure changes were transparent. Where necessary, the SCS Coordination Team liaised with authors/experts to undertake the revisions. The revised material was provided to the Editor-in-Chief and one Editor for a preliminary check to assess whether the SCS Coordination Team had adequately addressed the reviews. Once satisfied with the revisions, the revised materials were shared with the 35 authors/experts involved in the consensus processes to develop the Conclusions and Summary documents for final endorsement. The final stage in the eminent review process was to present the revised materials to the Editorial Board for consideration. The Editorial Board could request further changes until they were satisfied that all reviewer comments had been adequately addressed. Formal sign off took place at the Editorial Board meeting held on 1 March 2024.



Eminent expert review process for the Conclusions and Summary (3 reviewers)

Figure 4. Eminent review process for the 2022 SCS Conclusions and Summary.

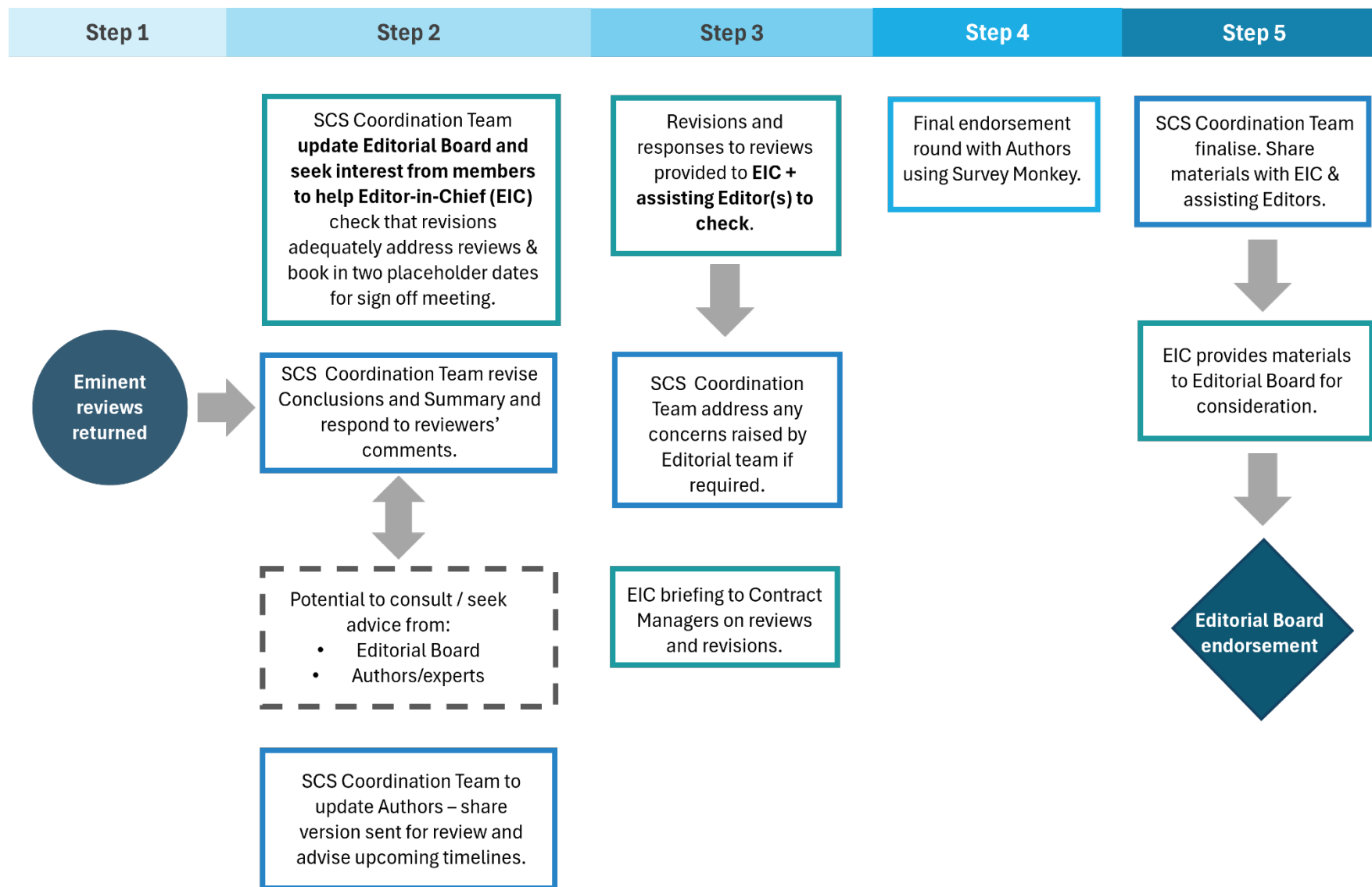
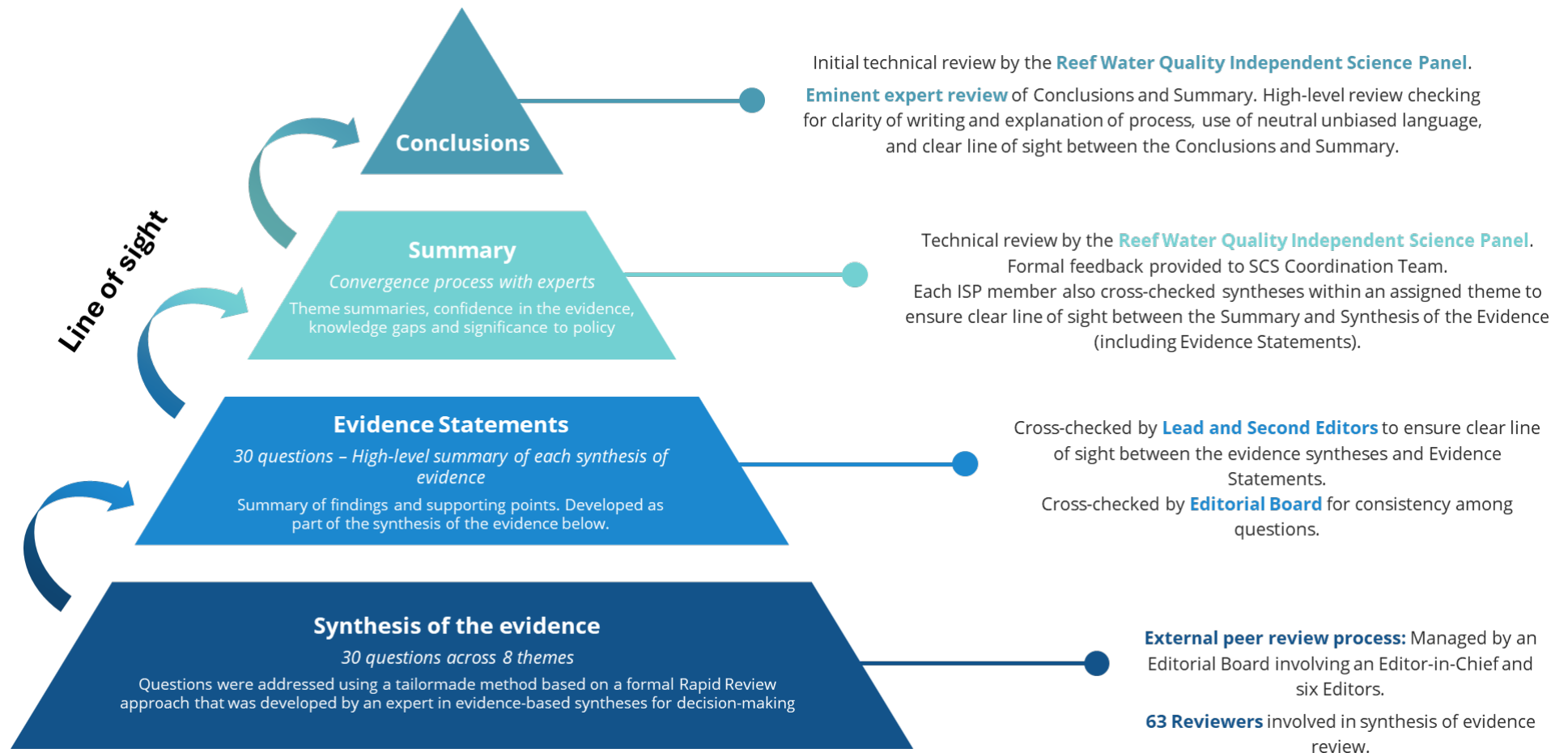


Figure 5. Process for addressing the 2022 SCS eminent reviews from receipt of reviews to final endorsement by the Editorial Board.

6. References

- Allen, H., Cury, A., Gaston, T., Graf, C., Wakley, H., & Willis, M. (2019). What does better peer review look like? Underlying principles and recommendations for better practice. *Learned Publishing* 32, 163-175.
- Cobo, E., Cortés, J., Ribera, J. M., Cardellach, F., Selva-O'Callaghan, A., Kostov, B., ... & Vilardell, M. (2011). Effect of using reporting guidelines during peer review on quality of final manuscripts submitted to a biomedical journal: masked randomised trial. *BMJ*, 343.
- Cook, C. N., Nichols, S. J., Webb, J. A., Fuller, R. A., & Richards, R. M. (2017). Simplifying the selection of evidence synthesis methods to inform environmental decisions: A guide for decision makers and scientists. *Biological Conservation*, 213, 135–145.
- Gregory, A. T., & Denniss, A. R. (2019). Everything you need to know about peer review—the good, the bad and the ugly. *Heart, Lung and Circulation*, 28, 1148-1153.
- Horbach, S. P., & Halffman, W. (2018). The changing forms and expectations of peer review. *Research Integrity and Peer Review*, 3, 1-15.
- Janowicz, K., & Hitzler, P. (2012). Open and transparent: the review process of the Semantic Web journal. *Learned Publishing*, 25, 48-55.
- Kelly, J., Sadeghieh, T., & Adeli, J. (2014). Peer review in scientific publications: benefits, critiques, & a survival guide. *EJIFCC*, 25, 227-243.
- Moher, D. (2015) Optimal strategies to consider when peer reviewing a systematic review and meta-analysis. *BMC Medicine*, 13: 1-4
- Pineda, M-C., Waterhouse, J., & Richards, R. (2024). 2022 Scientific Consensus Statement: Approach to the Development of Methods for the Synthesis of Evidence. Published by C₂O Consulting, Townsville, Queensland. 48pp.
- Ross-Hellauer, T. (2017). What is open peer review? A systematic review. *F1000Research*, 6.
- Tennant, J. P., Dugan, J. M., Graziotin, D., Jacques, D. C., Waldner, F., Mietchen, D., ... & Colomb, J. (2017). A multi-disciplinary perspective on emergent and future innovations in peer review. *F1000Research*, 6.
- Tennant, J. P., & Ross-Hellauer, T. (2020). The limitations to our understanding of peer review. *Research Integrity and Peer Review*, 5, 6.
- Van Rooyen, S., Delamothe, T., & Evans, S. J. (2010). Effect on peer review of telling reviewers that their signed reviews might be posted on the web: randomised controlled trial. *BMJ*, 341.

Appendix 1: Summary of review steps for the 2022 SCS



Appendix 2: Establishment of 2022 SCS Editorial Board

Table 1. Journals where Editorial Board and Editors were screened for potential suitability for 2022 SCS Editorial Board. To be considered, >10 articles from the journal must have been used in previous SCS.

	Journal name		Journal name
1.	Agriculture, Ecosystems & Environment	22.	Journal of Experimental Marine Biology and Ecology
2.	Aquatic Botany	23.	Journal of Hydrology
3.	Australian Journal of Soil Research	24.	Limnology and Oceanography
4.	Continental Shelf Research	25.	Marine and Freshwater Research
5.	Coral Reefs	26.	Marine Biology
6.	Earth Surface Processes and Landforms	27.	Marine Ecology Progress Series
7.	Ecological Applications	28.	Marine Policy
8.	Ecosystems	29.	Marine Pollution Bulletin
9.	Environmental Chemistry	30.	Nature
10.	Environmental Management	31.	Nature Climate Change
11.	Environmental Modelling and Software	32.	PLoS ONE
12.	Environmental Pollution	33.	PNAS
13.	Environmental Science & Technology	34.	Science
14.	Environmental Toxicity and Chemistry	35.	Science of the Total Environment
15.	Estuarine, Coastal and Shelf Science	36.	Scientific Reports
16.	Geomorphology	37.	Soil Research
17.	Global Change Biology	38.	The Rangeland Journal
18.	Hydrobiologia	39.	Trends in Ecology & Evolution
19.	Hydrological Processes	40.	Water Resources Research
20.	Journal of Environmental Management	41.	Water Science and Technology
21.	Journal of Environmental Quality	42.	Wetlands Ecology & Management

Invitations issued to prospective Editorial Board candidates

Dear **NAME**,

The SCS Coordination Team led by C₂O Consulting are seeking nominations from individuals with experience of indexed journal Editorial Board processes to join the 2022 Scientific Consensus Statement (SCS) Editorial Board. Given your Editorial Board experience, we would like you to consider nominating yourself for the role advertised below if you are able to satisfy the eligibility criteria.

NOMINATIONS

If you are interested in this opportunity and available for the time periods listed below, please submit your nomination by **<Date + Time AEST>** to the email 2022scs@c2o.net.au. As part of your nomination, please send us:

- A completed Nomination Form.
- Your CV including Editorial Board experience.
- A completed Conflict of Interest Declaration.

If you would like more information about the role, please feel free to contact me.

Advert included in email

NOMINATION FOR EDITORIAL BOARD

2022 Scientific Consensus Statement (SCS): Establishment of Editorial Board

The SCS Coordination Team led by C₂O Consulting are seeking nominations from individuals with experience of indexed journal Editorial Board processes to join the 2022 Scientific Consensus Statement Editorial Board. Selection of Editorial Board members will be made on a competitive basis under specified eligibility criteria. Editorial Board members will be remunerated for their time on the Board.

ABOUT THE SCIENTIFIC CONSENSUS STATEMENT

The Reef 2050 Water Quality Improvement Plan (Reef 2050 WQIP) is a joint commitment of the Australian and Queensland governments. The Plan is a collaborative program of coordinated projects and partnerships designed to improve the quality of water flowing to the Great Barrier Reef (GBR), Australia. The Scientific Consensus Statement (SCS) provides an in-depth review of recent scientific research about water quality issues on the Great Barrier Reef (GBR). It is updated periodically and provides the scientific evidence base for the design and implementation of the Reef 2050 WQIP. Oversight will be provided by Australia's and Queensland's Chief Scientists and the Reef Water Quality Independent Science Panel (ISP). To find out more about the Scientific Consensus Statement, please head to the 2022 SCS [social engagement platform](#).

BRIEF DESCRIPTION OF THE 2022 SCS PROJECT

A [list of 32 questions](#) ⁴have been identified and prioritised by policy and management representatives relevant to the management of GBR water quality, and will form the basis of the 2022 SCS. These 32 questions will be addressed through formal evidence syntheses that will need to be formally peer reviewed. Following this process, there will be a second activity to identify key points of consensus emerging from these evidence syntheses. These points of

⁴ This number was subsequently revised to 30 questions with the merging of Questions 1.2, 1.3 and 2.1.

consensus will also be formally peer reviewed by eminent experts before the final SCS products can be published.

Ensuring that the products developed as part of the 2022 SCS process meet stakeholder expectations and engender trust in the overall process is critical. The Reef 2050 Independent Expert Panel (IEP), the Reef Water Quality Independent Science Panel (ISP) and the Australian Chief Scientist have therefore **recommended that an Editorial Board be established to manage the peer review process.**

The primary objectives of the Editorial Board are to:

- Ensure that the peer review process meets best practice standards to provide assurance about the quality and integrity of the 32 evidence syntheses and points of consensus.
- Deliver editorial board handling services and coordination, as would be done for a scientific journal to ensure authors adequately address all feasible and reasonable peer review comments.

ROLES & RESPONSIBILITIES

The Editorial Board will be comprised of 1 Editor-in-Chief and 4-5 Managing Editors. The Board will have the following responsibilities:

- Provide independent and objective oversight for all phases of the peer review process, including the review of the 32 evidence syntheses and points of consensus.
- Ensure all aspects of the peer review process align with the guiding principles.
- Ensure the peer review process meets best practice standards.
- Ensure transparent documentation of all Editorial Board decisions.
- Discuss and advise on approaches to source Reviewers.
- Review criteria for conducting the reviews and for selecting Reviewers.
- Review and approve peer review templates and supporting documents.
- Select Reviewers from a pool of experts that have satisfied the Reviewer criteria.
- Make recommendations for the assignment of Reviewer question allocations (Note: this step will also receive an assurance check by the Australian and Queensland Chief Scientists).
- Consider Conflict of Interest declarations and decide whether conflicts can be managed or not (support on this aspect will be provided)
- Assess whether peer reviewer comments have been adequately addressed and manage the process to deliver a reasonable and transparent outcome.
- Be the point of contact for any issues related to peer review that need to be escalated (e.g. issues identified during quality checking). This may include issues where Reviewers provide conflicting feedback and an intervention may be required.
- Provide final sign off for completed reviews which meet Editorial Board requirements.

In addition the **Editor-in-Chief** will:

- Provide effective leadership to the Editorial Board and chair meetings.
- Ensure the Editorial Board delivers on its responsibilities and acts on assigned tasks promptly.
- Be the primary liaison with the SCS Coordination Team to prepare for meetings including approving the agenda, chairing meetings, and minutes.
- Have the deciding vote on decisions brought before the Editorial Board if necessary.
- Be the conduit when needed between the Queensland Government Department of Environment and Science, (DES), the Australian and Queensland Chief Scientists, IEP and ISP regarding the 2022 SCS peer review process.

RENUMERATION & TIME COMMITMENT

Members will be remunerated for their role on the Editorial Board. Members will be eligible for sitting fees in accordance with the Australian Government's Remuneration Tribunal recommendation for Committee members of Cooperative Research Centres (currently AUD\$1,229 for the Editor-in-Chief and AUD\$984 per Managing Editor per day).⁵

The Editorial Board will be required for the 2022 SCS from October 2022 until September 2023. However, the peak period for Editorial Board activity will be from October to December 2022 (process design & securing reviewers) and February to June 2023 (managing reviews). The Editorial Board will meet online as required. It is expected that the Editor-in-Chief role will involve 8-10 days work, and 7 days for Managing Editors.

ELIGIBILITY & EXPERTISE

Each nominee/applicant will be considered against the criteria specified below. Members **must meet Criteria 1 and 2** and at least **one of the remaining three criteria** (Criteria 3-5):

Essential:

- **Criteria 1:** Availability to participate from October 2022 until September 2023, with the peak period for Editorial Board activity from October 2022 to June 2023.
- **Criteria 2:** Demonstrated independence from the role of the SCS Coordination Team (identified through completion of the Conflict of Interest Declaration).

At least one of these criteria:

- **Criteria 3:** Current ISP or IEP member nominated through the Chairs of the Advisory Groups, with some expertise in the subject matter of the Scientific Consensus Statement.
- **Criteria 4:** Experience in academic Editorial Board work for indexed journals.
- **Criteria 5:** Experience in delivering and designing peer review processes including the ability to provide advice on the guiding principles for the peer review process, criteria for reviewer selection and approach for conducting reviews.

2022 SCS Editorial Board nomination form

The SCS Coordination Team led by C₂O Consulting are seeking nominations from individuals with experience of indexed journal Editorial Board processes to join the 2022 Scientific Consensus Statement Editorial Board. Selection of Editorial Board members will be made on a competitive basis under specified eligibility criteria. Editorial Board members will be remunerated for their time on the Board.

Nominee details

Name	
Position and Organisation	

Criteria

Each nominee/applicant will be considered against the criteria specified below. Members **must meet Criteria 1 and 2** and at least **one of the remaining three criteria** (Criteria 3-5):

⁵ Following advice, Editorial Board members were offered a fixed Honorarium in recognition of their service and contribution. This decision was made and communicated to candidates prior to any appointments.

Please select all that apply.

Essential:

- Criteria 1:** Availability to participate from October 2022 until September 2023, with the peak period for Editorial Board activity from October 2022 to June 2023.
- Criteria 2:** Demonstrated independence from the role of the SCS Coordination Team (identified through completion of the Conflict of Interest Declaration).

At least one of these criteria:

- Criteria 3:** Current ISP or IEP member nominated through the Chairs of the Advisory Groups, with some expertise in the subject matter of the Scientific Consensus Statement.
- Criteria 4:** Experience in academic Editorial Board work for indexed journals.
- Criteria 5:** Experience in delivering and designing peer review processes including the ability to provide advice on the guiding principles for the peer review process, criteria for reviewer selection and approach for conducting reviews.

Would you like to be considered for the Editor-in-Chief role?

- Yes** **No**

Statement of Interest

Please provide a brief Statement outlining your interest in the role and suitability for the position (max 300 words).

Nominee Execution

The Nominee:

- (a) ensures that all the information contained in the Nomination Form is complete, accurate, up to date and not misleading in any way.
- (b) agrees to contact C₂O Consulting immediately if any information provided in this nomination form changes or is incorrect.
- (c) consents that information provided in this nomination form may be provided to C₂O Consulting's project partners, including Australian and Queensland Government agencies.
- (d) has submitted a recent CV with the nomination form.
- (e) has completed the *2022 Scientific Consensus Statement Conflict of Interest Declaration*.

Date:

EXECUTED for:

Name of Nominee

Appendix 3: Evidence synthesis peer reviewer invitation issued from Lead Editor

Dear <enter name here>,

I am approaching you as a Lead Editor for the [Great Barrier Reef Water Quality Scientific Consensus Statement](#) (SCS). The SCS provides an in-depth review of recent scientific information about water quality issues on the Great Barrier Reef (GBR) Australia, and provides the primary scientific evidence base for the design and implementation of the [Reef 2050 Water Quality Improvement Plan](#). The SCS will address 30 questions relevant to the management of GBR water quality using a standardised rapid review method for evidence synthesis.

Given your expertise and experience, **I invite you to become a Reviewer** for the following question:

Question X.X:

Question summary: The question will....

The following aspects of the review process for the SCS are important to note:

- 1) A structured template will be provided to Reviewers that should be followed when completing your review. It has been designed to assist you and to ensure a consistent focus across the reviews of the many diverse questions.
- 2) The peer review process will run between April and July 2023. Reviews should be completed within 4 weeks of receiving the draft material, and if needed, you should be willing and able to provide comments on how the Authors have addressed your feedback within 2 weeks of receiving a revised version. These turnaround times are critical to our delivery.
- 3) Reviewers will remain anonymous to Authors/Contributors throughout the review process. Reviewers may be offered the opportunity to be listed in the final SCS output, but individual names would not be associated with a particular question.

We are offering an **honorarium of \$500 AUD to Reviewers** in recognition of the important contribution that your feedback will make to the quality and integrity of the process.

The SCS is a high-profile, foundational scientific output that receives considerable attention and scrutiny from a diverse group of stakeholders, end-users and other audiences. To ensure the credibility of the SCS, it is critical that we maintain independence between Authors and Reviewers. To be eligible, Reviewers must confirm that they:

- Have not published with the Lead Author in the last two years.
- Are not related to, or do not have a close personal relationship with the Lead Author and/or Contributors.
- Are not in any other position that could impact the Reviewer's ability to carry out an impartial view of the Author's work.
- Are able to meet the time commitments identified above.
- Agree to complete the review guided by a structured template.

If you are available and willing to review **Qx.x**, please confirm this by completing the form attached to this email, using **reply all** to ensure that the SCS Coordination Team (2022scs@c2o.net.au) is copied into your reply. If you have any questions or would like more information about the process, please contact me asap.

Please note that the contents of this email and form, particularly in relation to Authors and Contributors must be kept confidential and not shared with any other parties.

Finally, please let me know your decision by <**INSERT DATE - *within 1 week***>. I hope that you have the time and willingness to assist us with this important task.

Appendix 4: Prospective Evidence Synthesis Reviewer Conflict of Interest form

The Great Barrier Reef Water Quality Scientific Consensus Statement (SCS) provides an in-depth review of recent scientific information about water quality issues on the Great Barrier Reef (GBR) Australia, and provides the primary scientific evidence base for the design and implementation of the [Reef 2050 Water Quality Improvement Plan](#). The SCS Editorial Board is seeking to appoint Reviewers to support the delivery of the SCS. The SCS contains 30 evidence syntheses which require expert review. Each evidence synthesis has a designated Lead and Second Editor who will oversee the review process. **The Editorial Board have identified you as a potentially suitable reviewer for one of the questions.** The SCS is underpinned by a set of guiding principles to help increase transparency and build greater trust and confidence in the process. As such, we need each prospective Reviewer to provide some additional information that will help us ensure the integrity of the review process and manage any potential Conflicts of Interest (COIs). Appointed Reviewers will be offered an honorarium of \$500 AUD for their service.

If you are interested in reviewing the nominated question in Section 2, please complete this form and **'reply all'** to your email invite, ensuring inclusion of this address: 2022scs@c2o.net.au.

Reviewer details

Name	
Position and Organisation	

SCS Question information

The question we would like you to consider reviewing is:

Qx.x

Question summary: The question will

The length of the evidence synthesis will vary among questions. Page length can range from 30-100 pages including references and appendices. Longer syntheses often contain more data tables which contributes to their length. In addition, some pages are dedicated to metadata, and describing methods (e.g. databases used, search terms applied, exclusion & inclusion criteria).

The **Lead Editor** for this question is:

Lead Author and Contributor information:

Name	Organisation

Reviewer Criteria

Please respond to each of the following criteria:

a. Independence from Authors, Contributors and Lead Editor

Criteria 1: Do you work for the same organisation as the Lead Author and/or Contributors (identified above)? If so, please provide details of relationship e.g. line management, supervisor, same/different department, level of contact.

Please provide details here

Criteria 2: Are you currently collaborating with the Lead Author and/or Contributors and/or Lead Editor? If yes, please provide details of collaboration.

Please provide details here

Criteria 3: Have you published with the Lead Author in the last two years (i.e. between 2021 and current date)?

Yes **No**

Criteria 4: Are you related to, or do you have a close personal relationship with the Lead Author and/or Contributors?

Yes **No**

Criteria 5: Are you related to, or do you have a close personal relationship with the Lead Editor?

Yes **No**

Criteria 6: Are you in any other position that could impact your ability to carry out an impartial view of the Author's work?

Yes **No**

If yes, please provide details here

b. Time commitment and agreement to follow structured review template

The peer review process will run between April and July 2023. Reviews should be completed within 4 weeks of receiving the draft material, and if needed, you should be willing and able to provide comments on how the Authors have addressed your feedback within 2 weeks of receiving a revised version. In addition, for consistency, we are asking all Reviewers to complete their reviews following a structured template. Please confirm if you can meet these conditions.

Yes **No**

Confirmation of details

The candidate:

- (a) ensures that all the information contained in this Form is complete, accurate, up to date and not misleading in any way.
- (b) agrees to contact C₂O Consulting immediately if any information provided in this form changes or is incorrect.
- (c) consents that information provided in this form will be reviewed by the Editorial Board under the oversight of the Australian and Queensland Chief Scientists.

Date: _____

Signature

For further information or if you need any clarification about the content in this form, please contact the SCS Coordination Team led by C₂O Consulting via 2022scs@c2o.net.au.

To learn more about the SCS process, and to see the full list of questions, visit the SCS [website](#).

Appendix 5: Guidance document and Evidence Synthesis Peer Review Form

Please return your completed review to the Lead Editor and cc 2022scs@c2o.net.au

Metadata (to be completed by the SCS Coordination Team)

Reviewer name	
Lead Editor	
Lead Editor email	
Question number	
Question	
Author Team	
Synthesis of Evidence method (e.g., Evidence Summary or Evidence Review)	
Scope of Synthesis of Evidence (e.g., literature from the GBR, Australia or international)	
Date request for review sent out	
Due date for review	

Please return your completed review to the Lead Editor and cc 2022scs@c2o.net.au

For more information on the 2022 SCS process, please visit the 2022 SCS [website](#)

More detail on the methods and guidance provided to Authors is available [here](#)

Message from the Editor-in-Chief

Thank you for your time and commitment to complete this review. By agreeing to become a Reviewer, you are making a significant and important contribution to building confidence that the 2022 Scientific Consensus Statement (SCS) on land use impacts on Great Barrier Reef water quality and ecosystem condition is based on the most recent and best available scientific evidence. Your review will have a positive impact on the quality of the final report which is vital, as the SCS is a foundational document that is used to guide policy and decision making associated with water quality management in the Great Barrier Reef.

This review is slightly different to a scientific journal review. You will be asked a series of questions to help us understand certain aspects of the work that are important in determining its quality, integrity, rigour and credibility. Please consider your responses carefully and be constructive and solutions-oriented in your feedback. This will help Authors to deliver the best possible final product that can make the greatest difference to the Great Barrier Reef and its communities.

We greatly value your contribution.

Dr Russell Reichelt AO FTSE
Editor-in-Chief

Document Summary

Please familiarise yourself with this document before you start your review.

- **Metadata:** This section contains information about the 2022 SCS question you have agreed to review. This includes details of the Author Team. Please check these names carefully in case anything has changed since you first accepted this role and notify the Lead Editor if you consider there is any potential risk of a **Conflict of Interest**.
- **Section 1** provides important context about the purpose of the 2022 Scientific Consensus Statement.
- **Section 2** briefly explains the standardised methodology that has been used to address the 30 SCS questions.
- **Section 3** contains guidance about how to complete your review.
- **Section 4** is the formal review section where you can provide your feedback on the draft material. In this section, you will also be asked a series of focused questions which have been designed to provide a degree of consistency between reviews and to help ensure that the final product meets the needs of the end-users.

1. Background information

1.1 What is the Great Barrier Reef Water Quality Scientific Consensus Statement?

The Scientific Consensus Statement (SCS) on land use impacts on Great Barrier Reef (GBR) water quality (WQ) and ecosystem condition brings together scientific evidence to understand how land-based activities can influence water quality on the GBR, and how these influences can be managed. The SCS is used as a key evidence-based document by policymakers when they are making decisions about managing GBR water quality. In particular, the SCS feeds into the [Reef 2050 Water Quality Improvement Plan](#) (Reef 2050 WQIP) which is a joint commitment of the Australian and Queensland governments. The Reef 2050 WQIP describes actions for improving the quality of the water that enters the GBR from the adjacent catchments. The SCS has been updated periodically since its inaugural release in 2008 with the latest peer reviewed science to help inform the design, delivery and implementation of the Plan and related initiatives.

C₂O Consulting has been contracted by the Australian and Queensland governments to coordinate and deliver the 2022 SCS. The team at C₂O Consulting has many years of experience working on the water quality of the GBR and its catchments. They have been involved in the coordination and production of multiple iterations of the SCS since 2008.

1.2 2022 Scientific Consensus Statement questions

This iteration of the SCS will address **30 priority questions** covering social, economic, management and ecological themes. The questions were developed in consultation with scientific experts, policy and management teams and other key stakeholders (e.g., representatives from agricultural, tourism, conservation, research and Traditional Owner groups). Authors were then appointed via an Expression of Interest and selection process to address each question.

2. Methods used to address the 30 SCS questions

To accommodate the needs of GBR water quality policy and management, two different **methods for the synthesis of evidence** have been designed: the SCS Evidence Review and the SCS Evidence Summary. The methods were developed by an independent expert in evidence-based syntheses for decision-making who was engaged to develop a tailored approach for the SCS that was fit for purpose for the needs of policy and management. The methods are modelled on formal Rapid Review methods (see Cook et al., 2017) which are applied around the world, and were peer reviewed by three independent evidence synthesis experts. A standard template (which we refer to as the 'Synthesis of Evidence' below) containing detailed guidance was developed to encourage consistency among the Lead Authors of each question.

The **SCS Evidence Review** has been assigned to those questions where policy and management have indicated the highest priority. These questions have an additional quality assurance step to evaluate the confidence in the evidence informing the conclusions drawn.

The **SCS Evidence Summary** will be used for all other questions, and whilst confidence in the conclusions will still be assessed, a more rapid process has been used for the appraisal of evidence.

The method requires Authors to consider the spatial and temporal relevance of the literature to address the question, how much literature is available to address the question, whether the body of literature includes multiple lines of evidence (e.g., diversity of studies through field, experimental, laboratory, modelling studies), and how consistent the findings are among studies. Evidence Reviews also have an additional quality assurance assessment assessing the internal

validity or 'reliability' of the evidence items. All Authors were provided with training and ongoing guidance in the application of the method.

Importantly, all literature had to be **peer reviewed and publicly available**. As well as journal articles, this meant that grey literature (e.g., technical reports) that had been externally peer reviewed (e.g., outside of organisation) and was publicly available could be assessed as part of the synthesis of evidence.

2.1 Scope of the synthesis

The scope of each question is constrained to a specific and agreed interpretation. This interpretation was a critical first step in the method and was informed by consultation with policy, management and stakeholder representatives, and the Author's expert knowledge of the topic area. This interpretation provides a clear indication of the agreed scope, context and any constraints or areas of emphasis. Details about the scope and interpretation can be found in the Background section of the Synthesis of Evidence template for each question. **Reviewers are requested to ensure that comments are aligned with the interpretation of the question.**

In addition, the scope of the literature search for evidence depends on the nature of the question. For some questions, it might be more appropriate to only focus on evidence from the GBR region (e.g., the GBR context is essential to answer the question), for other questions, it might be important to search for literature outside of the GBR (e.g., the question relates to an emerging research theme where there is little information available from the GBR). Authors have been encouraged to ensure that their final evidence base is representative of the potentially larger total body of evidence available. **In the metadata information for the question you are reviewing, it will state whether the evidence base is from the GBR, Australia or international.**

2.2 Review materials

Each question has two key products that will be provided to you as part of the review process:

1. **Synthesis of Evidence (completed template):** This contains the executive summary, background information, narrative synthesis, evidence appraisal, evidence statements and complete reference lists.
2. **Data extraction & appraisal spreadsheet:** This contains the outcomes of the literature search with the key fields of information extracted from each item of literature that were used in compiling the narrative synthesis, the calculations behind the evidence appraisal, and reasons why some literature was excluded from the synthesis. This provides the basis for the content of the Synthesis of Evidence.

2.3 Structure of the Synthesis of Evidence template

The template contains two main sections:

- **Executive Summary:** This section brings together the evidence and findings reported in the main body of the document into a high-level overview. Key aspects to consider in your review should be if this summary accurately reflects the detail contained in the main body of evidence, and if it is written clearly and concisely in a way that can be understood by a wide range of audiences (e.g., plain English, limited jargon).
- **Synthesis of Evidence:** This section contains the detailed identification, extraction and examination of evidence used to address the question.
 1. **Background:** This section provides the context about why this question is important and explains how the Lead Author has interpreted the question.
 2. **Method:** This section outlines the search terms used by Authors to find relevant literature, which databases were used, and the inclusion and exclusion criteria.

3. **Search Results:** This section contains details about the number of literature items identified, sources, screening and the final number of literature items used in the synthesis of evidence.
4. **Key Findings:** This is the **main body of the synthesis and where we would like you to focus most of your attention**. It includes a summary of the study characteristics (e.g., how many, when, where, how), a summary of the evidence including key findings, trends or patterns, consistency or heterogeneity between studies and reasons why, key conclusions, limitations and uncertainties, significance of the findings to policy, practice and research, knowledge gaps, indigenous engagement as well as an appraisal of the evidence in terms of relevance, consistency, quantity and diversity.
5. **Evidence Statements:** This section includes a key evidence statement that summarises the key findings/conclusions for the question, supported by some key points. These should be clearly written, evidence-based, and provide an adequate representation of the main conclusions of relevance for the question. The outcomes from each of the 30 questions will contribute to a consensus process that will produce a series of high-level statements representing the key conclusions across the full scope of the SCS.
6. **References**

3. Guidance on completing your review

Please familiarise yourself with the Peer Review Form before you start your review. This review has a more structured approach than a typical scientific journal review and includes a **series of focused questions about the** draft material.

Your review will form an integral component of the overall quality assurance of the content of the 2022 Scientific Consensus Statement on land use impacts on Great Barrier Reef water quality and ecosystem condition. Please be thorough in your review of the draft material making sure you are objective, impartial, constructive and respectful in your feedback. In addition, where appropriate, please provide citations to support your comments.

Please **do not** edit the Synthesis of Evidence document or the Data Extraction & Appraisal spreadsheet. Only use this Peer Review Form to provide your feedback.

3.1 Pre-review checks

There have been several quality assurance checks implemented by the SCS Coordination Team during the development of the draft material to ensure that Authors have followed the methodology. These checkpoints were put in place to ensure consistency and standardisation of the approach across the diverse suite of questions addressed in the SCS. These included five main checkpoints:

- **Checkpoint 1:** Author question interpretation has considered all consultation feedback and policy needs.
- **Checkpoint 2:** Conceptual model checked and aligned with question.
- **Checkpoint 3:** Search Strategy was appropriate to address the Question and validated by evidence synthesis expert.
- **Checkpoint 4:** Data extraction & appraisal spreadsheet completed correctly.
- **Checkpoint 5:** Key findings are clearly described, and the narrative synthesis represents the agreed scope, data extraction and conceptual framework.

As a result of these quality assurance steps, there are certain sections of the Synthesis of Evidence template that do not require your detailed attention, but you may provide feedback on any point.

These sections are:

- Section 2: Methods
- Section 3: Search results

It is important nonetheless that you read these sections as they will assist your interpretation and assessment of the synthesis.

3.2 Preferred responses

The key goal of the review process is to help build confidence that the syntheses contain the best available science to help policy and management teams make informed decisions about how to manage GBR water quality. As such, when you are completing your review, we encourage the following types of responses:

- Expand beyond simple yes/no answers.
- Provide sufficient detail to ensure your intent is clear and not easily misinterpreted.
- When suggesting changes, be clear about what you think must be addressed and provide advice about how you think those changes might be achieved.
- Positive comments (e.g., strengths) about the Synthesis of Evidence in addition to constructive feedback.

Authors will be required to formally respond to all comments, so these types of responses are important in maximising the value and efficiency of the process.

Please do not edit within the Synthesis of Evidence document or Data Extraction & Appraisal spreadsheet - all your comments must be provided in the following Form.

IMPORTANT: If you have any queries during the review process, contact the Lead Editor for your question. Please do not contact the Lead Author or Contributors during the review process.

Reviewers will be offered the opportunity to be listed in the final SCS output, but individual names would not be associated with a particular question.

4. Review of the Synthesis of Evidence

Overall comments

Please provide a summary of the Synthesis of Evidence including the main findings, any inconsistencies, conclusions well as any strengths or weaknesses of the review.

My **recommendation** for the Synthesis of Evidence is:

- Accept (no further changes required) Minor revisions
 Major revisions required

Note: For **minor revisions**, it is likely that the Reviewer will not be asked to view the revised Synthesis of Evidence. For **major revisions**, the revised version along with Author responses may be shared with the Reviewer to ensure that feedback has been adequately addressed.

Structured feedback

Answers to the questions in Table 1 are **required**. These focused questions have been designed to provide us with a degree of consistency among reviews and to help ensure that the final product meets the needs of the end-users. Please provide as much information and guidance as possible to help the Authors to improve and refine the Synthesis of Evidence.

Table 1. Reviewer checklist. Please provide a response to each question and use Table 2 to provide further detail to illustrate key points or to refer to specific items. Provide line numbers when referring to specific sections of text.

Executive Summary (please review this section <u>after</u> you have completed your review of Sections 4 & 5 of the Synthesis of Evidence template)
1. Is the Executive Summary clearly and concisely written in language that could be understood by non-experts? Are the key findings relevant and clearly communicated? <i>If no, please explain why, and provide recommendations for how this could be improved.</i>
2. Is the Executive Summary an accurate reflection of the findings from the more detailed synthesis of evidence? <i>If no, please explain why, and provide recommendations for how this could be improved.</i>
3. Does the Executive Summary contain any overgeneralisations or inappropriate extrapolations based on the evidence presented? For example, GBR-wide conclusion(s) from limited data. <i>If yes, please provide more details.</i>

Synthesis of Evidence
Overall
4. Does the synthesis of evidence address the question? <i>If no, please explain why, and provide recommendations for how this could be improved.</i>
5. Did you identify any potential instances of bias or personal opinions in the Authors reporting? <i>If yes, please provide more details with examples.</i>
Section 1 - Background
6. Is the background information sufficient to understand why this question is being addressed and the approach the Authors have taken to address the question? <i>If no, please explain the reason for your answer.</i>
Section 2 and 3 - Methods and Search results
7. These sections have already been reviewed as part of the process. <i>If you feel that aspects are incorrect, inadequately represented or unclear, please provide more information.</i>
Section 4 - Key Findings
8. Are the key findings appropriate for the evidence presented? <i>If no, please provide more information including specific examples</i>
9. Have any key studies been missed? <i>If you think there are key studies that have been missed, please provide more information. Note that any literature must be peer reviewed and publicly available to be included.</i>
10. Are statements adequately supported by citations and have references been appropriately cited? <i>Please identify any specific issues.</i>

11. Did you identify any instances where the interpretation or critical appraisal of specific literature was not correct? <i>If yes, please provide more details.</i>
12. Are multiple perspectives, or alternative theories, presented and discussed where appropriate? <i>If no, please identify.</i>
13. Does the evidence appraisal accurately reflect the evidence base (e.g., relevance, diversity, consistency, confidence)? Refer to the Data Extraction & Appraisal spreadsheet. <i>If no, please provide more detail.</i>
14. Do the knowledge gaps align with the evidence presented? <i>If no, please provide more details.</i>
15. The SCS will provide the evidence base that will be used by policy makers. Hence each Synthesis of Evidence must be neutral and evidence-based, but useable by policy makers. Do the implications for policy and management align with the evidence presented? <i>If no, please expand and identify areas for improvement.</i>
16. Have the key uncertainties and limitations of the evidence base been clearly identified and explained? <i>If no, please explain the reason for your answer.</i>
Section 5 – Consensus Process
17. Do the Evidence Statements align with the Key findings? <i>If no, please explain why, and provide recommendations for how this could be improved.</i>

Additional remarks

Table 2. Additional feedback on the Synthesis of Evidence template and/or Data Extraction & Appraisal spreadsheet. Provide line numbers when referring to specific sections of text.

Section	Line number(s)	Comment

Appendix 6: Synthesis of Evidence Author Response Template

Please return the completed Author Response Template and revised synthesis of evidence to the Lead Editor and cc 2022scs@c2o.net.au

Metadata (to be completed by the SCS Coordination Team)

Lead Editor	
Lead Editor email	
Question number	
Question	
Author Team	
Synthesis of Evidence method (e.g., Evidence Summary or Evidence Review)	
Scope of Synthesis of Evidence (e.g., literature from the GBR, Australia or international)	
Date review feedback sent to Lead Author	
Due date for revisions	

Please return the completed Author Response Template and revised synthesis of evidence to the Lead Editor and cc 2022scs@c2o.net.au

Remarks from the Editors

IMPORTANT: If you have any queries during the review process, please contact the Lead Editor for your question in the first instance.

Guidance for Author Teams

The Author response to feedback from Reviewers follows the same approach as a typical scientific journal article. Authors are expected to consider each comment, provide a response, and identify any changes made to the draft material following the feedback. If clarification is required on any of the comments, please contact the Lead Editor who can liaise with the Reviewer on your behalf.

Please ensure that your response:

- Responds to all comments made by the Reviewers.
- Provides sufficient detail so that it is clear for the Editors to see that you have considered and/or addressed the Reviewer's feedback.
- Provides reference to line numbers and revised text so that the changes you have made in response to feedback are clear for the Editors and/or Reviewers.
- **Please edit your synthesis of evidence using [Track Changes](#).**

Note that the following material is extracted directly from the Reviews.

Reviewer 1

Review of the Synthesis of Evidence

Overall comments

Please provide a summary of the Synthesis of Evidence including the main findings, any inconsistencies, conclusions as well as any strengths or weaknesses of the review.

My **recommendation** for the Synthesis of Evidence is:

- Accept (no further changes required) Minor revisions
- Major revisions required

Note: For **minor revisions**, it is likely that the Reviewer will not be asked to view the revised Synthesis of Evidence. For **major revisions**, the revised version along with Author responses may be shared with the Reviewer to ensure that feedback has been adequately addressed.

Reviewer 1 - Structured feedback

Answers to the questions in Table 1 are **required**. These focused questions have been designed to provide us with a degree of consistency among reviews and to help ensure that the final product meets the needs of the end users. Please provide as much information and guidance as possible to help the Authors to improve and refine the Synthesis of Evidence.

Table 1. Reviewer checklist. Please provide a response to each question and use Table 2 to provide further detail to illustrate key points or to refer to specific items. Provide line numbers when referring to specific sections of text.

Reviewer 1 comment	Author response	Action taken (to include changes to text and reference to relevant line numbers)
Executive Summary (please review this section <u>after</u> you have completed your review of Sections 4 & 5 of the Synthesis of Evidence template)		
1. Is the Executive Summary clearly and concisely written in language that could be understood by non-experts? Are the key findings relevant and clearly communicated? <i>If no, please explain why, and provide recommendations for how this could be improved.</i>		
2. Is the Executive Summary an accurate reflection of the findings from the more detailed synthesis of evidence? <i>If no, please explain why, and provide recommendations for how this could be improved.</i>		
3. Does the Executive Summary contain any overgeneralisations or inappropriate extrapolations based on the evidence presented? For example, GBR-wide conclusion(s) from limited data. <i>If yes, please provide more details.</i>		
Synthesis of Evidence	Author response	
Overall		
4. Does the synthesis of evidence address the question? <i>If no, please explain why, and provide recommendations for how this could be improved.</i>		

Reviewer 1 comment	Author response	Action taken (to include changes to text and reference to relevant line numbers)
5. Did you identify any potential instances of bias or personal opinions in the Authors reporting? <i>If yes, please provide more details with examples.</i>		
Section 1 - Background		
6. Is the background information sufficient to understand why this question is being addressed and the approach the Authors have taken to address the question? <i>If no, please explain the reason for your answer.</i>		
Section 2 and 3 - Methods and Search results		
7. These sections have already been reviewed as part of the process. <i>If you feel that aspects are incorrect, inadequately represented or unclear, please provide more information.</i>		
Section 4 - Key Findings		
8. Are the key findings appropriate for the evidence presented? <i>If no, please provide more information including specific examples</i>		
9. Have any key studies been missed? <i>If you think there are key studies that have been missed, please provide more information. Note that any literature must be peer reviewed and publicly available to be included.</i>		
10. Are statements adequately supported by citations and have references been appropriately cited? <i>Please identify any specific issues.</i>		
11. Did you identify any instances where the interpretation or critical appraisal of specific literature was not correct? <i>If yes, please provide more details.</i>		
12. Are multiple perspectives, or alternative theories, presented and discussed where appropriate? <i>If no, please identify.</i>		

Reviewer 1 comment	Author response	Action taken (to include changes to text and reference to relevant line numbers)
13. Does the evidence appraisal accurately reflect the evidence base (e.g., relevance, diversity, consistency, confidence)? Refer to the Data Extraction & Appraisal spreadsheet. <i>If no, please provide more detail.</i>		
14. Do the knowledge gaps align with the evidence presented? <i>If no, please provide more details.</i>		
15. The SCS will provide the evidence base that will be used by policy makers. Hence each Synthesis of Evidence must be neutral and evidence-based, but useable by policy makers. Do the implications for policy and management align with the evidence presented? <i>If no, please expand and identify areas for improvement.</i>		
16. Have the key uncertainties and limitations of the evidence base been clearly identified and explained? <i>If no, please explain the reason for your answer.</i>		
Section 5 – Consensus Process		
17. Do the Evidence Statements align with the Key findings? <i>If no, please explain why, and provide recommendations for how this could be improved.</i>		

Reviewer 1 - Additional remarks

Table 2. Additional feedback on the Synthesis of Evidence template and/or Data Extraction & Appraisal spreadsheet. Provide line numbers when referring to specific sections of text.

Section	Line number(s)	Reviewer 1 Comment	Authors response	Action taken (to include changes to text and reference to relevant line numbers)

Reviewer 2

Review of the Synthesis of Evidence

Overall comments

Please provide a summary of the Synthesis of Evidence including the main findings, any inconsistencies, conclusions as well as any strengths or weaknesses of the review.

My **recommendation** for the Synthesis of Evidence is:

- Accept (no further changes required) Minor revisions
 Major revisions required

Note: For **minor revisions**, it is likely that the Reviewer will not be asked to view the revised Synthesis of Evidence. For **major revisions**, the revised version along with Author responses may be shared with the Reviewer to ensure that feedback has been adequately addressed.

Reviewer 2 - Structured feedback

Answers to the questions in Table 1 are **required**. These focused questions have been designed to provide us with a degree of consistency among reviews and to help ensure that the final product meets the needs of the end users. Please provide as much information and guidance as possible to help the Authors to improve and refine the Synthesis of Evidence.

Table 3. Reviewer checklist. Please provide a response to each question and use Table 2 to provide further detail to illustrate key points or to refer to specific items. Provide line numbers when referring to specific sections of text.

Reviewer 2 comment	Author response	Action taken (to include changes to text and reference to relevant line numbers)
Executive Summary (please review this section <u>after</u> you have completed your review of Sections 4 & 5 of the Synthesis of Evidence template)		
1. Is the Executive Summary clearly and concisely written in language that could be understood by non-experts? Are the key findings relevant and clearly communicated? <i>If no, please explain why, and provide recommendations for how this could be improved.</i>		
2. Is the Executive Summary an accurate reflection of the findings from the more detailed synthesis of evidence? <i>If no, please explain why, and provide recommendations for how this could be improved.</i>		
3. Does the Executive Summary contain any overgeneralisations or inappropriate extrapolations based on the evidence presented? For example, GBR-wide conclusion(s) from limited data. <i>If yes, please provide more details.</i>		
Synthesis of Evidence	Author response	
Overall		
4. Does the synthesis of evidence address the question? <i>If no, please explain why, and provide recommendations for how this could be improved.</i>		

Reviewer 2 comment	Author response	Action taken (to include changes to text and reference to relevant line numbers)
5. Did you identify any potential instances of bias or personal opinions in the Authors reporting? <i>If yes, please provide more details with examples.</i>		
Section 1 - Background		
6. Is the background information sufficient to understand why this question is being addressed and the approach the Authors have taken to address the question? <i>If no, please explain the reason for your answer.</i>		
Section 2 and 3 – Methods and Search results		
7. These sections have already been reviewed as part of the process. <i>If you feel that aspects are incorrect, inadequately represented or unclear, please provide more information.</i>		
Section 4 – Key Findings		
8. Are the key findings appropriate for the evidence presented? <i>If no, please provide more information including specific examples</i>		
9. Have any key studies been missed? <i>If you think there are key studies that have been missed, please provide more information. Note that any literature must be peer reviewed and publicly available to be included.</i>		
10. Are statements adequately supported by citations and have references been appropriately cited? <i>Please identify any specific issues.</i>		
11. Did you identify any instances where the interpretation or critical appraisal of specific literature was not correct? <i>If yes, please provide more details.</i>		
12. Are multiple perspectives, or alternative theories, presented and discussed where appropriate? <i>If no, please identify.</i>		

Reviewer 2 comment	Author response	Action taken (to include changes to text and reference to relevant line numbers)
13. Does the evidence appraisal accurately reflect the evidence base (e.g., relevance, diversity, consistency, confidence)? Refer to the Data Extraction & Appraisal spreadsheet. <i>If no, please provide more detail.</i>		
14. Do the knowledge gaps align with the evidence presented? <i>If no, please provide more details.</i>		
15. The SCS will provide the evidence base that will be used by policy makers. Hence each Synthesis of Evidence must be neutral and evidence-based, but useable by policy makers. Do the implications for policy and management align with the evidence presented? <i>If no, please expand and identify areas for improvement.</i>		
16. Have the key uncertainties and limitations of the evidence base been clearly identified and explained? <i>If no, please explain the reason for your answer.</i>		
Section 5 – Consensus Process		
17. Do the Evidence Statements align with the Key findings? <i>If no, please explain why, and provide recommendations for how this could be improved.</i>		

Reviewer 2 - Additional remarks

Table 4. Additional feedback on the Synthesis of Evidence template and/or Data Extraction & Appraisal spreadsheet. Provide line numbers when referring to specific sections of text.

Section	Line number(s)	Reviewer 2 Comment	Authors response	Action taken (to include changes to text and reference to relevant line numbers)

Appendix 7: Prospective Eminent Reviewer Form

1. Background

The Scientific Consensus Statement (SCS) brings together the latest scientific evidence to understand how land-based activities can influence water quality in the Great Barrier Reef, and how these influences can be managed. The SCS is used as a key evidence-based document by policymakers involved in the management of Great Barrier Reef water quality. The three primary outputs of the 2022 SCS are:

- **Part I:** The 2022 Scientific Consensus Statement Conclusions (8 pages)
- **Part II:** The 2022 SCS Summary (~100 pages)
- **Part III:** The 2022 SCS Synthesis of the Evidence and high-level Evidence Statements for 30 questions organised into eight themes.

These outputs follow a hierarchy in the level of detail presented, moving from the full details of the synthesis of the evidence in Part III, with a summary of that material in Part II and the highest-level conclusions presented in Part I.

An Editorial Board, endorsed by Australia's Chief Scientist, was established to manage the peer review process for the primary SCS outputs following a similar approach to that used in indexed scientific journals. The formal peer review of Part III (synthesis of evidence) involved 63 external and independent expert reviewers.

The 2022 SCS Editorial Board is now seeking to appoint three eminent experts to review the two highest level SCS outputs – Parts I and II.

2. Role of eminent expert reviewers

There has been a considerable amount of technical review and oversight during earlier stages of the 2022 SCS (see Figure 6). The primary role of the eminent reviewers is to ensure that Parts I and II:

- Contain sufficient information to understand how they were developed.
- Are clear, concise and use neutral unbiased language.
- Do not contain any obvious errors or inconsistencies.

In addition, eminent reviewers will be asked to check that there is a clear line of sight from Part II (Summary) to Part I (Conclusions). This is important to ensure no new material has been introduced in Part I that has not been covered in Part II, and will provide assurance that these high level conclusions are derived from the underlying evidence base.

3. Eminent reviewer criteria, conflicts of interest and honorarium

The 2022 SCS is underpinned by a set of guiding principles to help increase transparency and build greater trust and confidence in the process. As such, we need each prospective eminent reviewer to provide some additional information that will help us ensure the integrity of the review process and manage any potential Conflicts of Interest (COIs). Appointed Reviewers will be offered an honorarium of \$2,000 AUD for their service.

If you are interested in becoming an eminent reviewer for the 2022 SCS, please complete this form and return to 2022scs@c2o.net.au.

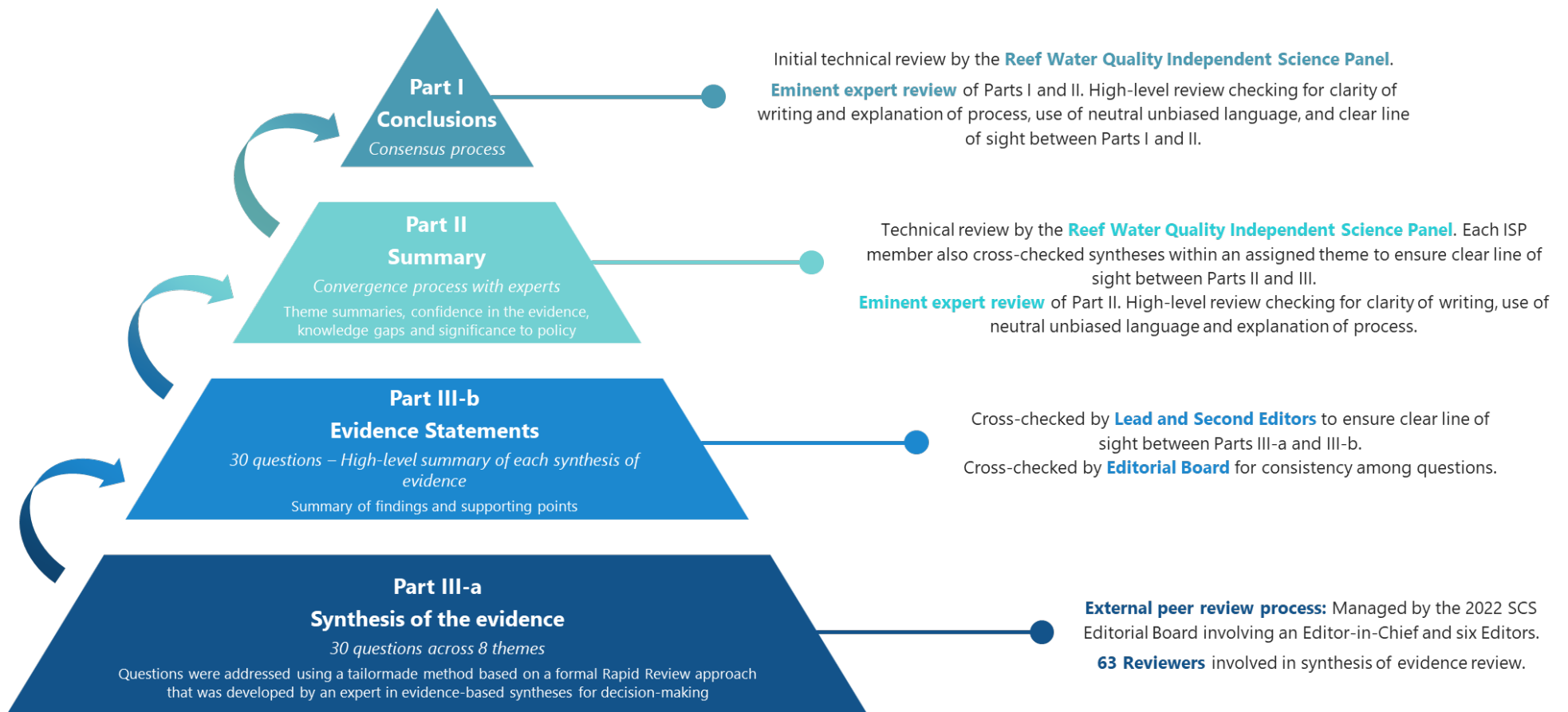


Figure 6. Primary outputs of the 2022 Scientific Consensus Statement and the major review stages.

4. Eminent Reviewer details

Name & position, organisation	
Country	
Phone number	
Have you had any involvement in the 2022 SCS or previous iterations? If so, please provide a brief explanation.	

5. Reviewer criteria

We are seeking reviewers that have experience with other high-level evidence-based environmental projects or synthesis reports, a multidisciplinary background, a reputation for quality and excellence and/or demonstrable strategic or program level thinking. You have been nominated by the 2022 SCS Editorial Board as a potential eminent reviewer based on your expertise and experience. Before your nomination can be considered further, there are several additional criteria that need to be met.

Essential criteria

Criteria 1: Agreement to be publicly acknowledged as an eminent expert reviewer.

Criteria 2: Commitment to review on time. Eminent review is intended to commence by the end of December 2023 to maintain the project timelines. **Reviews need to be completed by 29 January 2024.**

Criteria 3: For consistency and transparency, all eminent reviewers must complete their reviews following a structured template. The template will comprise a number of structured questions as well as an opportunity to provide more general feedback.

Please confirm you can meet all these conditions.

Yes **No**

6. Conflict of Interest declaration

As part of the strict probity requirements that have been established for the 2022 SCS, all individuals involved are asked to declare any potential conflicts of interest (COIs) so that they can be recorded and assessed. A “conflict of interest” refers to any current professional, financial or other interest, or relationship which could impair, or be seen to impair, the individual’s objectivity in carrying out their duties and responsibilities for the 2022 SCS. These interests or relationships must be disclosed.

Potential COIs can include:

- Working for the same organisation.
- Professional or personal relationships.
- Recent and past collaborations with individuals involved in the SCS including shared publications.
- Membership on Boards or Advisory Committees.
- Any other reason that could impact your ability to carry out an impartial review.

Please review Attachment 1 which contains a table of all individuals and organisations involved in the production of the SCS and declare any potential COIs with these individuals in the final column

of the table or advise in the box below.

Please declare any other potential COIs related to the subject of the 2022 SCS including:

- **Employment or professional appointments**
- **Relevant financial interests**
- **Research support including grants, collaborations, sponsorships or other funding and the relevant funding agency**
- **Non-financial interests including advisory bodies, Boards or editorial roles**
- **Other matters that might be perceived as affecting your objectivity or independence.**

7. Confirmation of details

The candidate:

- (f) ensures that all the information contained in this Form is complete, accurate, up to date and not misleading in any way.
- (g) agrees to contact C₂O Consulting immediately if any information provided in this form changes or is incorrect.
- (h) consents that information provided in this form will be reviewed by the Editorial Board under the oversight of Australia's Chief Scientist.

Signature: _____ **Date:** _____

For further information or if you need any clarification about the content in this form, please contact the SCS Coordination Team led by C₂O Consulting via 2022scs@c2o.net.au.

To learn more about the SCS process, and to see the full list of questions, visit the SCS [website](#).

Appendix 8: Guidance document and Eminent Reviewer Review Template

Please return your completed review to the SCS Coordination Team

SCS Coordination Team: 2022scs@c2o.net.au

Metadata (to be completed by the SCS Coordination Team)

Reviewer name	
Due date for review	
Return to	<u>2022scs@c2o.net.au</u>

For more information on the 2022 SCS process, please visit the 2022 SCS [website](#)

Message from the Editor-in-Chief

Thank you for your time and commitment to complete this review. By agreeing to become an Eminent Reviewer for Part I Conclusions and Part II Summary of the 2022 Scientific Consensus Statement (2022 SCS), you are making a significant and important contribution to building confidence that the 2022 SCS on land use impacts on Great Barrier Reef water quality and ecosystem condition is based on the best available scientific evidence. Your review will have a positive impact on the quality of the final SCS which is vital, as the SCS is a foundational document that is used to guide policy and decision making associated with water quality management in the Great Barrier Reef.

The SCS strives to be a high-quality, trusted source of scientific evidence on water quality issues and solutions in the Great Barrier Reef. To ensure those standards are met, this review follows a structured approach that will ask you to consider a series of questions to help us understand certain aspects of the work that are important in determining its quality, integrity, rigour and credibility. As a first step, please carefully read the guidance in the following pages which describe how the SCS has been developed, what has already been reviewed, and the type of feedback that we are looking for from you as an Eminent Reviewer.

We greatly value your contribution.

Dr Russell Reichelt AO FTSE
Editor-in-Chief

Document Summary

Please familiarise yourself with this document before you start your review.

- **Section 1** explains the purpose of the Scientific Consensus Statement.
- **Section 2** describes the process to develop the 2022 SCS.
- **Section 3** contains guidance about how to complete your review.
- **Section 4** is the formal review section where you can provide your feedback on the draft material. In this section, you will also be asked a series of focused questions which have been designed to provide a degree of consistency between reviews and to help ensure that the final product meets the needs of the end-users.

1. The Great Barrier Reef Water Quality Scientific Consensus Statement

The Scientific Consensus Statement (SCS) on land use impacts on Great Barrier Reef (GBR) water quality and ecosystem condition brings together scientific evidence to understand how land-based activities can influence water quality on the GBR, and how these influences can be managed. The SCS is a key evidence-based document used by policymakers when they are making decisions about managing GBR water quality. In particular, the SCS provides supporting information for the design, delivery and implementation of the [Reef 2050 Water Quality Improvement Plan](#) (Reef 2050 WQIP) which is a joint commitment of the Australian and Queensland governments. The Reef 2050 WQIP describes actions for improving the quality of the water that enters the GBR from the adjacent catchments. The SCS, in its various forms, has been updated periodically since 2002 with the latest peer reviewed science to help inform the design, delivery and implementation of the Plan and related initiatives.

2. The 2022 SCS development process

There are several changes to the way the 2022 SCS has been developed, designed, and delivered compared to earlier iterations. These changes were introduced following stakeholder feedback which identified several areas for improvement including demonstrated independence from decision makers during its development, increased transparency and rigour in the approach to synthesise the evidence base, assessment of the level of confidence in the findings and greater engagement and accessibility of the outputs as reinforced by a set of guiding principles. C₂O Consulting has been contracted by the Australian and Queensland governments to coordinate and deliver the 2022 SCS. C₂O Consulting has an SCS Coordination Team who are responsible for managing the project. Oversight of the 2022 SCS process has been provided by Australia's Chief Scientist. The Reef Water Quality Independent Science Panel and the Reef 2050 Plan Independent Expert Panel have provided technical advice and review in several steps of the process. Several expert working groups were established to support the development of methods to ensure best practice was followed for the synthesis of the evidence, peer review and consensus processes. Policy and management representatives, and stakeholders including the Reef 2050 Plan Reef Advisory Committee, were kept informed throughout the process.

2.1 Development of the 2022 SCS

The 2022 SCS has been developed over two years (2022-2024) and is the most comprehensive and rigorous assessment of land-based impacts on the water quality of the GBR to date. Development of the 2022 SCS has involved almost 200 experts, researchers, scientists, policy and management teams, and other stakeholders and groups from Australia and overseas.

The **primary outputs** of the 2022 SCS are shown in Figure 7 and include:

- The 2022 Scientific Consensus Statement: Conclusions (Part I)
- The 2022 Scientific Consensus Statement Summary (Part II)
- The 2022 Scientific Consensus Statement Synthesis of the Evidence and high-level Evidence Statements (Part III)

These outputs follow a hierarchy in the level of detail presented, moving from the full details of the synthesis of the evidence in Part III, with a summary of that material in Part II and the highest-level conclusions presented in Part I. **The focus for eminent reviewers is Parts I and II.**

Figure 8 shows the various developmental stages of the 2022 SCS from question setting and author selection, through to the development of the formal methods to synthesise the evidence, and the establishment of an Editorial Board to manage the peer review process, and an expert Consensus Process Working Group to guide the development of a formal convergence and consensus process.

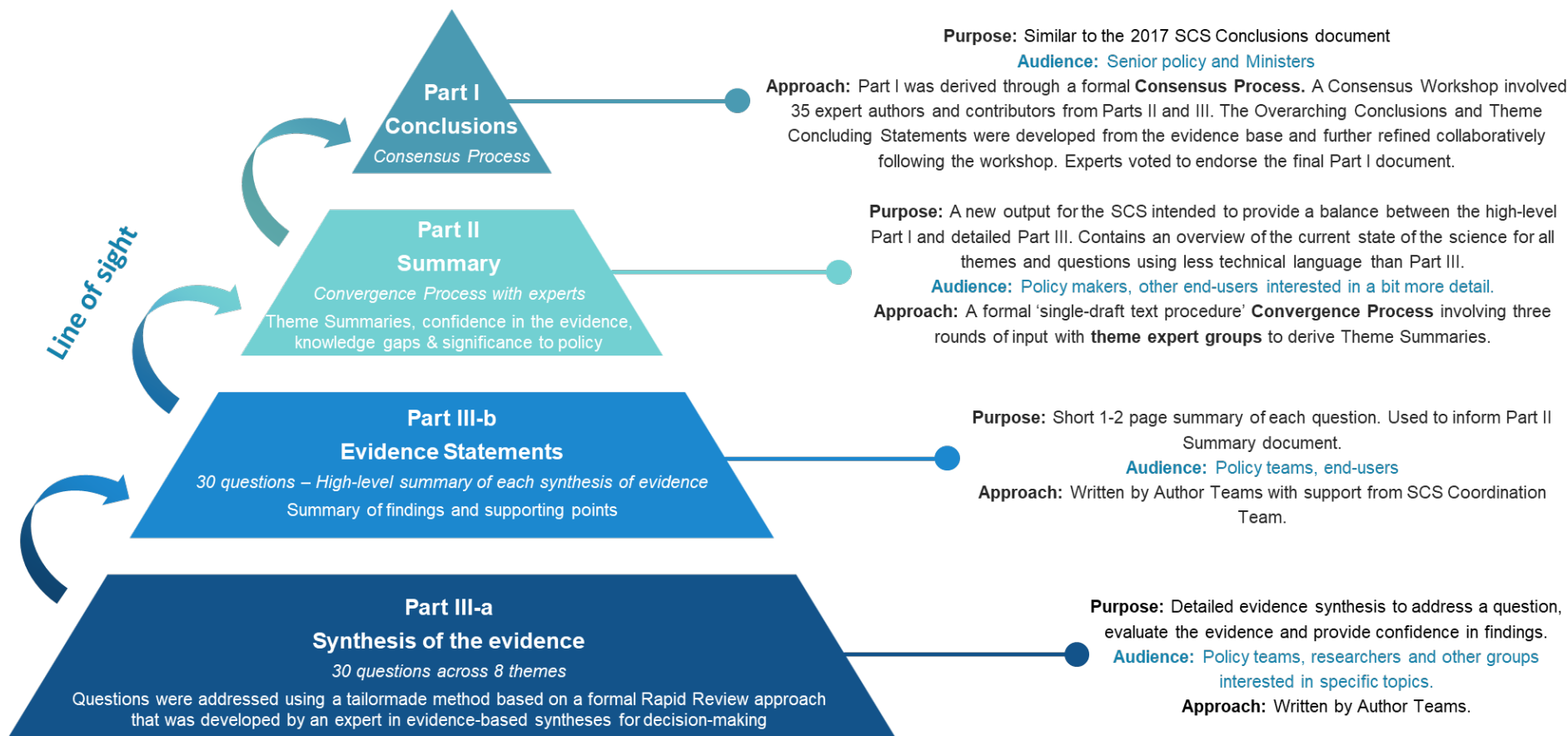


Figure 7. Primary outputs of the 2022 Scientific Consensus Statement.

2022 Scientific Consensus Statement Guiding Principles

- Demonstrated independence from end users in the synthesis of the evidence and review of the outputs.
- Establish and use fit for purpose methods and processes, and engage fit for purpose people.
- Increased transparency and robustness in design and delivery.
- Ensure inclusive, genuine and timely engagement with end-users, stakeholders, and audiences.
- Minimise the potential for bias in reviewing outputs and synthesis.
- Assess and present levels of confidence in the evidence.
- Improve accessibility to the science underpinning the 2022 Scientific Consensus Statement.



Figure 8. Overview of the 2022 Scientific Consensus Statement process.

2.2 Overview of Part III – Synthesis of the Evidence

The 2022 SCS addresses 30 priority questions that were developed in consultation with scientific experts, policy and management teams and other key stakeholders (e.g., representatives from agricultural, tourism, conservation, research and Traditional Owner groups). The 30 questions are organised into eight themes: values and threats, sediments and particulate nutrients, dissolved nutrients, pesticides, other pollutants, human dimensions, and future directions, and cover topics ranging from ecological processes, delivery and source, through to management options (Figure 9).

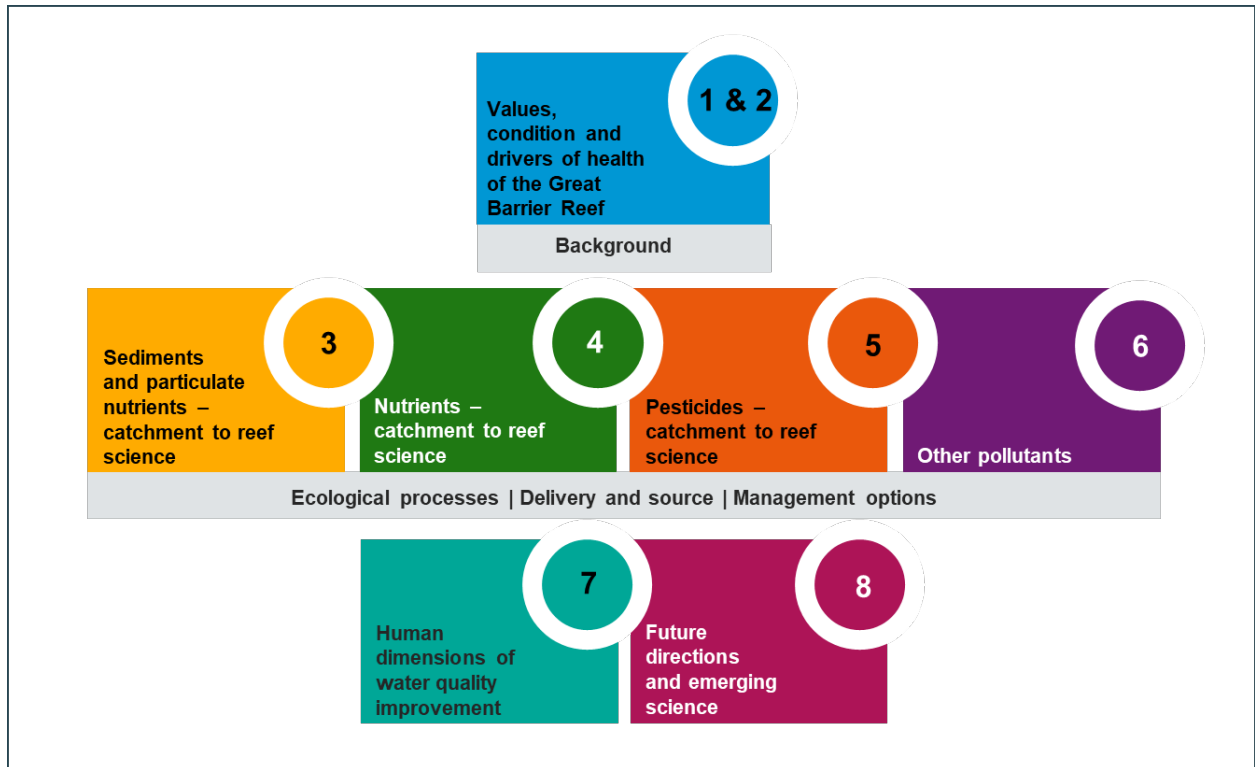


Figure 9. Structure of the 2022 Scientific Consensus Statement.

To address the 30 questions, the 2022 SCS adopted a formal evidence review and synthesis method. Formal evidence review methods are increasingly being used where science is needed to inform decision making, and have become an internationally recognised standard for accessing, appraising and synthesising scientific information. More specifically, ‘evidence synthesis’ is the process of identifying, compiling and combining relevant knowledge from multiple sources so it is readily available for decision makers⁶.

In recent years there has been an emergence of evidence synthesis methods that involve some modifications of Systematic Reviews so that they can be conducted in a more timely and cost-effective manner. This suite of evidence synthesis products are referred to as ‘Rapid Reviews’⁷. These methods typically involve a reduced number of steps such as constraining the search effort, adjusting the extent of the quality assessment, and/or modifying the detail for data extraction, while still applying methods to minimise author bias in the searches, evidence appraisal and synthesis methods.

⁶ Pullin, A., Frampton, G., Jongman, R., Kohl, C., Livoreil, B., Lux, A., ... & Wittmer, H. (2016). Selecting appropriate methods of knowledge synthesis to inform biodiversity policy. *Biodiversity and Conservation*, 25, 1285-1300. <https://doi.org/10.1007/s10531-016-1131-9>

⁷ Collins A, Coughlin D, Miller J, & Kirk S (2015) The production of quick scoping reviews and rapid evidence assessments: A how to guide. UK Government. <https://www.gov.uk/government/publications/the-production-of-quick-scoping-reviews-and-rapid-evidence-assessments>

To accommodate the needs of GBR water quality policy and management, tailor-made methods based on Rapid Review approaches were developed for the 2022 SCS by an independent expert in evidence-based syntheses for decision-making. The methods were initially reviewed by a small expert group with experience in GBR water quality science, then externally peer reviewed by three independent evidence synthesis experts.

Authors were asked to follow the methods, complete a standard template, and extract data from literature in a standardised way to maximise transparency and ensure that a consistent approach was applied to all questions. Authors were provided with a Methods document, '2022 Scientific Consensus Statement: Methods for the synthesis of evidence'⁸, containing detailed guidance and requirements for every step of the synthesis process. Each synthesis included an appraisal of the evidence, which involved assessment of the relevance, quantity, diversity and consistency of the evidence base for answering the question. Importantly, this approach meant that for the first time, the SCS was able to formally assess the confidence in the scientific evidence for each question based on the overall relevance and consistency of the evidence base.

Each question has two key products that will be made available to you for information via a shared Dropbox folder but these **do not require review** as they have already been peer reviewed. These are:

3. **Synthesis of Evidence:** This contains the executive summary, background information, methods, search results, narrative synthesis, evidence appraisal and references. Each synthesis also contains an **Evidence Statement** which is a 1–2-page summary of the main findings in from the synthesis using less technical language and including points of particular relevance to policy and management.
4. **Data extraction & appraisal spreadsheet:** This contains the outcomes of the literature search with the key fields of information extracted from each item of literature that were used in compiling the narrative synthesis, the calculations behind the evidence appraisal, and reasons why some literature was excluded from the synthesis. This provides the basis for the content of the Synthesis of Evidence.

2.3 2022 SCS Convergence and Consensus Process (Parts II and I)

For the 2022 SCS, identifying the points of scientific consensus that are agreed by experts across multiple fields of research and disciplines is highly significant for the broad community of policy makers, managers, delivery partners and a wider audience that all hold an interest in water quality outcomes for the GBR. The definition of consensus approved by the Reef Water Quality ISP and applied for the 2022 SCS is: '*A public statement on scientific knowledge on Great Barrier Reef water quality and ecosystem condition, drawn from multiple lines of evidence, that is generally agreed by a representative group of experts. The consensus does not necessarily imply unanimity.*' The outputs of the consensus process also highlight the strength of the evidence, and areas where further knowledge is needed.

2.3.1 Overview of Part II – Summary

Part II was developed through a formal convergence process using a 'Single-Draft Text Procedure' method to produce a Summary Statement for each Theme. This involved a single drafting team who produced an initial draft **based on the evidence contained in the syntheses**. This draft was circulated to expert groups (all Lead Authors and several Contributors with specific expertise) and revised across three rounds until agreement was reached on the final Summary Statement for the theme. The process was designed by an expert Consensus Process Working Group and the running

⁸ Richards R, Pineda MC, Sambrook K, Waterhouse J (2023) 2022 Scientific Consensus Statement: Methods for the synthesis of evidence. C2O Consulting, Townsville, pp. 59.

of the process was overseen by an independent consensus expert to ensure it adhered to international best practice standards for consensus processes.

Part II of the 2022 SCS is structured into four sections. Section 1 introduces the 2022 SCS and its main components, Section 2 will contain Statements of Assurance on the 2022 SCS process from Australia's Chief Scientist and the Reef Water Quality Independent Science Panel, who have provided oversight for the project. Section 3 contains the Concluding Statements resulting from the Consensus Process for Part I. Section 4 contains an overview for each Theme, including the Summary Statements reached by convergence among all experts within each Theme expert group, and the supporting Evidence Statements for each question within a Theme, extracted from the Part III syntheses of evidence.

2.3.2 Overview of Part I – Conclusions (max length = 8 pages)

Part I of the 2022 SCS contains the high-level Overarching Conclusions and Theme Concluding Statements. The development of these conclusions involved a formal expert elicitation process designed by an expert Consensus Process Working Group. A consensus workshop brought together 36 Lead Authors (and several Contributors with specific expertise) from the 30 questions to **discuss and agree on a final set of Concluding Statements with a clear line of sight to the underpinning evidence base**. Following the workshop, the statements were refined collaboratively among the group of Lead Authors and Contributors until consensus was reached. The Overarching Conclusions and Concluding Statements were reviewed and subsequently endorsed by the Reef Water Quality ISP, prior to eminent expert review.

2.4 Major review steps of the 2022 SCS

Throughout the development of the 2022 SCS, each major step has been through some form of external review (Figure 10), supported by several advisory and review groups.

2.4.1 External independent peer review of the Synthesis of Evidence Methods

The formal methods used to answer the 30 questions in Part III were designed by an expert in evidence synthesis for the SCS, guided by an expert Methods Working Group and were externally peer reviewed by three internationally recognised experts in evidence synthesis methods.

2.4.2 Establishment of the 2022 SCS Editorial Board

An Editorial Board, endorsed by Australia's Chief Scientist, was established to manage the peer review process for the three primary SCS outputs (Parts I, II and III) following a similar approach to that used in indexed scientific journals. The Editorial Board is comprised of an Editor-in-Chief and six Editors with editorial expertise in indexed scientific journals.

2.4.3 External independent peer review of the Synthesis of Evidence and Evidence Statement for each of the 30 questions

The formal peer review of Part III (synthesis of evidence) involved **63 external and independent expert reviewers**. Each question had a minimum of two reviewers, one with GBR-relevant expertise, and a second 'external' reviewer (i.e., international or from elsewhere in Australia). Reviewers completed a peer review template which included a series of standard questions about the quality, rigour and content of the synthesis, and provided a recommendation (i.e., accept, minor revisions, major revisions). A **Lead and Second Editor** endorsed the synthesis once question authors had adequately addressed peer reviewer feedback. Lead and Second Editors were also asked to provide assurance that there was a clear line of sight between the body of evidence and the high-level Evidence Statement to ensure that all statements were supported by the evidence base. The Editorial Board then collectively checked the Evidence Statements for use of non-technical language, clarity and for any inconsistencies between questions.

2.4.4 Technical review of Parts I and II

The Reef Water Quality ISP provided technical review and an assurance role between the high-level Evidence Statements from Part III and the Theme Statements contained in Part II (Summary), to ensure that the Part II statements adequately reflected the evidence base. The same role was applied in the review of Part I, ensuring that the scientific rigour continues between these documents.

2.4.5 Eminent review of Parts I and II (this role)

Part I and Part II have been endorsed by the ISP. The role of the eminent reviewers is to undertake a final independent review of these documents.

3. Guidance on completing your review

Please familiarise yourself with the Review Form below before you start your review. Your review will form an integral component of the overall quality assurance of the content of the 2022 SCS. For transparency and to provide assurance around the quality, integrity, rigour and credibility of Parts I and II of the 2022 SCS, this review requires a semi-structured approach. Because of this, the form includes **a series of focused questions** about the draft material, as well as an opportunity for additional reviewer remarks.

As described in Section 2.4 (Major review steps of the 2022 SCS) and shown in Figure 10, many aspects of the 2022 SCS have already received considerable input, review and endorsement through expert working groups, advisory bodies and/or formal peer review. It is therefore critical that these processes are recognised and respected in the current review stage. **Please note that certain aspects cannot be changed by the eminent reviewers (see Guidance below), but constructive feedback that can be used to inform future iterations of the SCS is welcome.**

3.1 Role of the 2022 SCS eminent reviewers

The **primary role of the eminent reviewers** is to ensure that Parts I and II:

- Contain sufficient information to understand how they were developed.
- Are clear, concise and use neutral unbiased language.
- Do not contain any obvious errors or inconsistencies.

In addition, eminent reviewers are asked to **independently check that there is a clear line of sight from Part II (Summary) to Part I (Conclusions)**. Confidence that there is transparency in how the evidence presented in Part II informed Part I is critically important to ensure that no new material has unintentionally been introduced in Part I that has not been covered by the underlying evidence base.

Given the considerable amount of review and oversight that has already occurred for the processes involved in the development of the 2022 SCS, as well as the formal methods used to reach consensus among the experts, eminent reviewers **do not need** to:

- Comment on the 2022 SCS process. Input, advice and review has been provided throughout the process by Australia's Chief Scientist, the Reef Water Quality Independent Science Panel (ISP) and the Reef 2050 Plan Independent Expert Panel (IEP), expert working groups, external peer reviewers, and Contract Managers.
- Comment on the 30 individual evidence syntheses or Evidence Statements (also within Part II - Summary). These have been externally peer reviewed by 2-3 independent external reviewers, endorsed by two Editors, signed off by the 2022 SCS Editorial Board, read by at least one ISP member and endorsed by ISP.
- Spend extensive time wordsmithing the Overarching Conclusions, Theme Concluding Statements in Part I or Summary Statements in Part II other than addressing points of clarity

noted above. These Statements have been reached through an extensive convergence and consensus process with experts.

IMPORTANT: If you have any queries during the review process, contact the SCS Coordination Team (2022scs@c2o.net.au) copying in the Editor-in-Chief, Russell Reichelt (email address removed).

3.2 Next steps after your review

Following your review, the SCS Coordination Team will work with the Lead Authors and Contributors involved in the consensus process to revise the materials. If necessary, there will be a second consensus process to seek endorsement from the expert groups. Similar to the scientific journal process, revised materials along with responses to reviewer comments will be provided to the Editorial Board to decide whether the revisions are adequate.

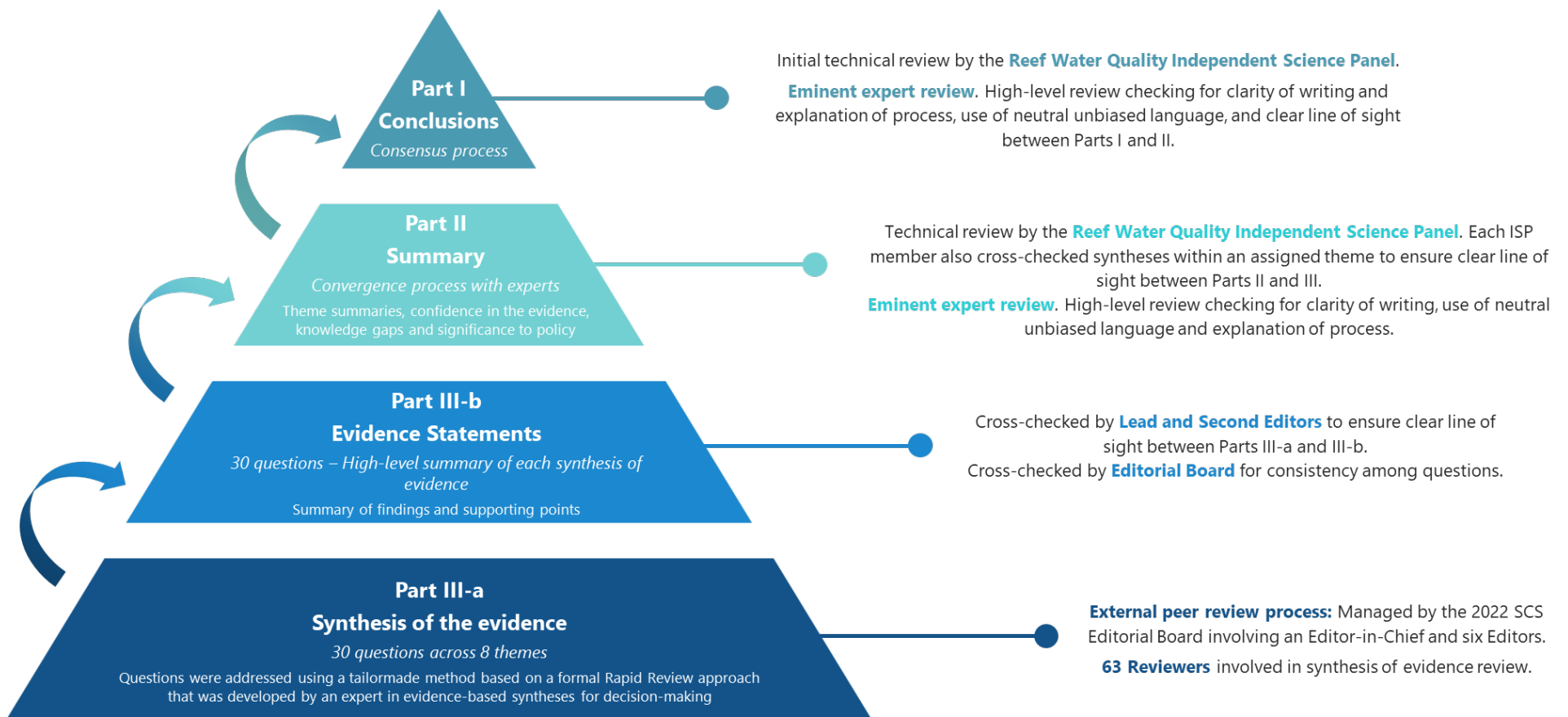


Figure 10. Primary outputs of the 2022 Scientific Consensus Statement and the major review stages.

4. Eminent Review Form

4.1 Overall comments Part I - Conclusions

Please provide your overarching summary of the Part I – Conclusions document, noting the structured questions in the table below.

My **recommendation** for Part I – Conclusions is:

- Accept (no further changes required) Minor revisions
 Major revisions required

4.2 Overall comments Part II - Summary

Please provide your overarching summary of the Part II – Summary document, noting the structured questions in the table below.

My **recommendation** for Part II - Summary is:

- Accept (no further changes required) Minor revisions
 Major revisions required

4.3 Structured feedback on Parts I and II

Answers to the questions in Table 1 are **required**. These focused questions have been designed to provide us with a degree of consistency among reviews and to help ensure that the final product meets the needs of the end-users. Please provide as much information and guidance as possible to help improve and refine Parts I and II if necessary.

Table 1. Structured questions for reviewers. Please provide a response to each question and use Table 2 to provide further detail to illustrate key points or to refer to specific items. Provide line numbers when referring to specific sections of text.

Part I – Conclusions
<i>Contains the high-level Overarching Conclusions and Theme Concluding Statements. Designed to be maximum of eight pages.</i>
Is the introductory section of Part I - Conclusions sufficiently clear to give the reader an adequate understanding of the context and purpose of the SCS?
Is enough information presented in Part I to understand how the content has been derived? Has the process to develop Part I been clearly described?
Can Part I be read and understood as a standalone document?
Are the Overarching Conclusions and Theme Concluding Statements clearly articulated? Are there any suggestions for improving the clarity of the messages? If not, please identify specific wording that could be improved, noting that any proposed adjustments will be considered in the context of the technical intent and sensitivity of the specific wording of the content.
Is the terminology and language used suitable for a non-technical reader?
Is there any perception of bias from reading Part I? Have the materials been written using neutral, unbiased language?
Part II – Summary
Is the introductory section of Part II - Summary sufficiently clear to give the reader an adequate understanding of the context and purpose of the SCS?

Is enough information presented in Part II to understand how the content has been derived? Has the process to develop Part II been clearly described?
Can Part II be read and understood as a standalone document?
Is there any perception of bias from reading Part II? Have the materials been written using neutral, unbiased language?
Are there any suggestions for improving the clarity of the overall messages in Part II?
Is the terminology and language used suitable for a reader with some technical knowledge?
Between Parts I and II
Is there a clear line of sight from the Part II - Summary to the Part I - Conclusions? <i>If no, please explain the reason for your answer and provide examples.</i>
Has any new material been introduced in Part I that was not been introduced in Part II? <i>If yes, please explain the reason for your answer and provide examples.</i>
Are there any prominent messages from Part II that have been missed in Part I? <i>If yes, please explain the reason for your answer and provide examples.</i>
Are there any contradictory statements within or between Parts I and II?

Additional remarks

Table 2. Additional feedback on the Synthesis of Evidence template and/or Data Extraction & Appraisal spreadsheet. Provide line numbers when referring to specific sections of text.

Section	Line number(s)	Comment

Appendix 9: Response template for Eminent Reviews
Remarks from the Editor-in-Chief / Editorial Board

General comments from SCS Coordination Team

Note that the following material is extracted directly from the Reviews.

Eminent Reviewer 1

Overall comments Part I – Conclusions

My **recommendation** for the Part I – Conclusions is:

- Accept (no further changes required) Minor revisions
 Major revisions required

Note: For **minor revisions**, it is likely that the Eminent Reviewer will not be asked to view the revised Conclusions. For **major revisions**, the revised version along with SCS Coordination Team responses may be shared with the Eminent Reviewer to ensure that feedback has been adequately addressed.

Overall comments Part II – Summary

My **recommendation** for the Part II – Summary is:

- Accept (no further changes required) Minor revisions
 Major revisions required

Note: For **minor revisions**, it is likely that the Eminent Reviewer will not be asked to view the revised Summary. For **major revisions**, the revised version along with SCS Coordination Team responses may be shared with the Eminent Reviewer to ensure that feedback has been adequately addressed.

Eminent Reviewer 1 - Structured feedback on Parts I and II

Table 1. Structured feedback from Eminent Reviewer 1.

Eminent Reviewer 1 comment	SCS Coordination Team response	Action taken (to include changes to text and reference to relevant line numbers)
Part I – Conclusions <i>Contains the high-level Overarching Conclusions and Theme Concluding Statements. Designed to be maximum of eight pages.</i>		
1. Is the introductory section of Part I - Conclusions sufficiently clear to give the reader an adequate understanding of the context and purpose of the SCS?		
2. Is enough information presented in Part I to understand how the content has been derived? Has the process to develop Part I been clearly described?		
3. Can Part I be read and understood as a standalone document?		
4. Are the Overarching Conclusions and Theme Concluding Statements clearly articulated? Are there any suggestions for improving the clarity of the messages? If not, please identify specific wording that could be improved, noting that any proposed adjustments will be considered in the context of the technical intent and sensitivity of the specific wording of the content.		
5. Is the terminology and language used suitable for a non-technical reader?		
6. Is there any perception of bias from reading Part I? Have the materials been written using neutral, unbiased language?		

Eminent Reviewer 1 comment	SCS Coordination Team response	Action taken (to include changes to text and reference to relevant line numbers)
Part II - Summary		
7. Is the introductory section of Part II - Summary sufficiently clear to give the reader an adequate understanding of the context and purpose of the SCS?		
8. Is enough information presented in Part II to understand how the content has been derived? Has the process to develop Part II been clearly described?		
9. Can Part II be read and understood as a standalone document?		
10. Is there any perception of bias from reading Part II? Have the materials been written using neutral, unbiased language?		
11. Are there any suggestions for improving the clarity of the overall messages in Part II?		
12. Is the terminology and language used suitable for a reader with some technical knowledge?		
Between Parts I and II		
13. Is there a clear line of sight from the Part II - Summary to the Part I - Conclusions? <i>If no, please explain the reason for your answer and provide examples.</i>		
14. Has any new material been introduced in Part I that was not been introduced in Part II? <i>If yes, please explain the reason for your answer and provide examples.</i>		
15. Are there any prominent messages from Part II that have been missed in Part I? <i>If yes, please explain the reason for your answer and provide examples.</i>		

Eminent Reviewer 1 comment	SCS Coordination Team response	Action taken (to include changes to text and reference to relevant line numbers)
16. Are there any contradictory statements within or between Parts I and II?		
Additional Remarks		