

Commemorating the 50th anniversary of the Ramsar Convention on Wetlands

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Abstract. This issue of *Marine and Freshwater Research* celebrates 50 years of the Ramsar Convention on Wetlands, which was signed in 1971. It contains papers that describe the development of the Convention and its implementation, including the listing of wetlands of international importance and maintenance of their ecological character. The latter is a fundamental issue for wetland management as illustrated in papers that address a range of management issues, including the impact of climate change, and approaches for building awareness about their values, and concludes with a forward view for potentially reframing human–wetland relationships.

Received 11 August 2022, accepted 18 August 2022, published online 14 September 2022

The special issue

This issue of *Marine and Freshwater Research* commemorates the 50th anniversary of the Ramsar Convention on Wetlands – the text of the Convention having been agreed in the Iranian city of Ramsar on 2 February 2022, now celebrated as World Wetlands Day. With the signing of the text on 3 February the formally entitled Convention on Wetlands of International Importance Especially as Waterfowl Habitat was launched. The title has since been shortened for everyday usage with removal of the reference to waterfowl habitat, reflecting the contemporary interest in wetlands and the increased recognition of the values and benefits they provide.

In commemoration of the signing of the text of the Convention, we have compiled manuscripts that add further details about some of the key elements of the Convention. These are differentiated from other cited works in this editorial with ‘this issue’ being added after the citation. The manuscripts are published in two issues of the journal, this being the first.

The Convention

The Ramsar Convention on Wetlands is one of the first global, inter-governmental environment treaties with the text negotiated through the 1960s and further developed over the succeeding decades. The history of the development of the text of the Convention has been documented by Matthews (1993) and Stroud *et al.* (2022, this issue). The latter has also pointed out the

substantial influence the Convention has had on the content and processes contained in subsequent intergovernmental biodiversity and environmental treaties.

Although the year 2021 represents the 50th anniversary of the Convention being agreed and signed in 1971, it was not until 1975 that the Convention formally came into force with the accession of seven countries, Australia having been the first in 1974. The idea for a wetland convention had come almost a decade earlier from a suggestion from a representative of a waterfowl hunting organisation during the 1962 Mar Conference (International Union for Conservation of Nature 1964), which in itself was a major turning point in efforts to develop a more coordinated and systematic approach to waterbird and wetland management.

The Convention now has 172 Contracting Parties (countries) who generally meet at triennial intervals to manage the Convention itself, to consider the state of the world’s wetlands, and to outline technical measures and policy positions to support the wise use of all wetlands within their territory. It covers a wide range of wetland types which has proven to be suitable for the purposes of the Convention despite not having been widely adopted in other international contexts (Stroud *et al.* 2022, this issue). It has also moved from an initial focus on waterfowl and now includes guidance on a range of issues, including the importance of wetlands for water and food security (Falkenmark *et al.* 2007), the alleviation of poverty (Kumar *et al.* 2011), human health and wellbeing (Horwitz and Finlayson 2011),

peri-urban and urban development (McInnes 2014), disaster risk reduction (Kumar *et al.* 2017), and adapting to climate change (Finlayson *et al.* 2017; Fennessy and Lei 2018; Moomaw *et al.* 2018).

Contracting Parties have three key obligations, namely: i) to conserve and wisely use all wetlands; ii) to designate and maintain the ecological character of at least one Wetland of International Importance (known as Ramsar Sites); and iii) to cooperate across national boundaries on cross-border wetlands and shared species. The listing of Ramsar wetlands is seen as the flagship of the Convention while the other obligations are more far reaching and extend to all wetlands and international cooperation.

The requirement that Contracting Parties designate specific wetlands for listing as Ramsar Sites comes with the proviso that their ecological character is maintained. The on-going development of the list of Ramsar Sites has been successful with some 2439 wetlands listed (6 July 2022), covering 2.54×10^6 km², which amounts to an impressive 17% of the estimated 15×10^6 km² area of wetlands globally (Davidson and Finlayson 2019). The listing of these sites is done at the behest of the relevant country based on meeting at least one of a set of nine criteria (Stroud and Davidson 2022, this issue), although not all are used to the same extent.

The obligation to make wise use of all wetlands established a wider concept for Contracting Parties to implement, and has required considerable elaboration and the development of both policy and practical guidance (Finlayson *et al.* 2011; Pritchard 2022, this issue). This includes how wetlands are assessed and monitored, how they are managed, and how the direct and indirect drivers of adverse change are addressed, and further increases the imperative for inter-sectoral cooperation nationally and internationally. Management issues are addressed by papers in this issue with, for example, Kirsch *et al.* (2022, this issue) examining whether Australian governments are sufficiently addressing the obligation under the Convention to maintain the ecological character of wetlands in the Murray–Darling Basin, which is subject to a massive effort to provide environmental water.

As humans face the ecological consequences of the Anthropocene epoch where human activity is recognised as having a significant adverse impact on the planet's climate and ecosystems the pressure on wetlands is likely to increase further. Wetlands management has acquired the nature of a 'wicked planning problem', characterised by multiple drivers of change; high levels of ambiguity and uncertainty; multiple objectives, values or perspectives; complex interactions and interconnectedness with other issues; and shifting or evolving understandings of the problem (Wallis and Ison 2011).

Further papers consider the information needed to assist managers make decisions to develop or implement such solutions. Mall *et al.* (2022, this issue) used sediment analyses to determine changes in a Ramsar Site in the same basin with multiple analyses indicating that the wetlands have been degraded. Issues associated with information needs for wetland management have also been considered by Papas *et al.* (2022, this issue) who presented an index of wetland condition based on a model of wetland function to be readily used by wetland managers. Campbell *et al.* (2022, this issue) consider the development of management objectives and evaluation approaches for vegetation in flow-

managed systems and propose principles and key knowledge needed to implement these through adaptive approaches.

Two further papers report the efforts of stakeholders to contribute to the management of important wetlands. Catsadorakis *et al.* (2022, this issue) describe the efforts of a local environment non-government organisation to improve the condition of the transboundary Prespa lakes. These efforts focussed on community-based management efforts and transboundary cooperation. Ernoul *et al.* (2022, this issue) further describe the voluntary efforts of stakeholders from Ramsar Sites through the use of environment contracts, while advocating for their integration into national policy. The importance of stakeholders in wetland management is supported by these papers, in particular the value of effective actions by environmental organisations.

What has been achieved?

After 50 years it is telling to consider what has been achieved by the Convention, or more accurately, by the Contracting Parties who make the decisions at Conferences of the Parties (COPs) and implement them in accordance with their own policies and legislative arrangements.

The wetland loss figures that have been published in recent years have largely been presented as global or regional figures which are useful as an overview, whereas their greatest value could be at a country-scale where the multiple actions to prevent further loss or degradation, or to replace those that have been lost, occurs. The published loss values, such as the 35% decline between 1970 and 2015 (Darrah *et al.* 2019), have featured in many statements (printed, including in social media, and spoken), and may be misleading if the limits of the data are not also presented. However, both Davidson (2014) and Darrah *et al.* (2019) recognised that, for various reasons, their loss figures were likely to be over-estimates. Take the estimate of 87% loss of wetlands since 1700 presented by Davidson (2014) using a limited set of available published data. If we do a simple back-calculation of the area of wetland in 1700 based on the 12×10^6 km² current area of inland wetlands (which is seen as under estimated; Davidson and Finlayson 2018) the area of inland wetlands in 1700 was 92×10^6 km², compared to a current global land area of 149×10^6 km². Is that plausible? This illustrates that the issue of wetland loss is not as simple as these calculations suggest, and demonstrates a need to be fully aware of what the data indicate and acknowledge the limitations of the data that are available on wetland extent (past and present). Hence, we need to look further at what the wetland loss data represents, and how it should be presented.

Even with the above given cautionary note, the wetland loss data and other data in the Global Wetland Outlook (Ramsar Convention 2018) indicate that the Convention has not achieved as much as may have been anticipated. An alternative way of looking at this, as outlined in Finlayson *et al.* (2011), is to consider that the situation may have been worse except for the actions generated by the Convention. We see that as plausible, and this assumption could be assessed by data analysis and – examination of the effectiveness of the Convention, as expressed through national processes. The latter is important as implementation occurs at the national level – there is ample evidence that implementation has been uneven. The example

provided by [Gaget et al. \(2020\)](#) for assessing the effectiveness of implementation in Mediterranean countries could be extended to other regions and used to encourage Contracting Parties to build on the guidance and wisdom that has been provided through the Convention and from other sources.

Wetlands and people

The above issues relate to shortfalls in the performance of Contracting Parties to the Convention (not that all have fallen short to the same extent) and, although critically important, there is another side to the story, and one that has many successes. These include the greater awareness about the value of wetlands and the benefits they provide for many people through the provision of ecosystem services, and increased effort to reduce losses and to restore and create wetlands. The Convention has been at the forefront to develop the concept of ecosystem services ([de Groot et al. 2006](#)) and have it incorporated alongside the ecological concepts that were included in the text of the Convention.

Given both the loss and degradation of wetlands, and expanded thinking about the intricate inter-relationships between people and wetlands [Kumar et al. \(2021\)](#) have gone further and proposed that the Convention extend the concept of ecological character to one of social-ecological character, which gives greater expression to the human links with wetlands. This proposal to integrate social and ecological factors may challenge those who consider such moves as going beyond the remit or competence of what they see as largely a biodiversity convention. However, we consider that ignoring the social aspects of wetland human-wetland relationships limits our ability to realise the goals of the Convention.

The social dimensions of wetland management do not though stop with the changes suggested by [Kumar et al. \(2021\)](#) as recognised by the Convention's emphasis on communication and awareness of the values of wetlands. [Wang et al. \(2022, this issue\)](#) extends such investigations and considers the need to continue to increase the awareness of wetlands through meaningful experiences through the provision of on-site facilities, as well as the use of effective web-based communication about wetlands and their benefits to people. The effort to raise awareness of the values of wetlands and the efforts of many people to manage and improve the state of their local wetlands is illustrated in the efforts to celebrate World Wetlands Day every year.

Managing wetlands

The complexities of managing important wetlands have been shown by the Global Wetland Outlook and numerous case studies. Wetland management is complex if not difficult, and while management planning guidance has been provided and many wetlands have been restored, the wetland loss and degradation data (taking into account the nuances around such data) indicate that more needs to be done – much more in fact, including replacing those wetlands that have been lost, where practicable.

The issue of practicableness has been raised by [Finlayson et al. \(2022a, this issue\)](#) when considering the ambitious plan to restore water to the wetlands of the Murray–Darling Basin in

south-eastern Australia. In this instance they raise concerns about the impact of climate change on water targets, and further promote the effective participatory involvement of local communities in decision making about wetlands. The importance of participatory processes is implicit in many papers on managing wetlands – making it explicit in practice is also a lesson derived from past management outcomes.

The impact of climate change on wetlands has been articulated by many authors over many years and perhaps surprisingly to many, the Convention has hitherto not provided effective guidance on how to adapt whether at a site or catchment level ([Finlayson et al. 2017](#)). This is likely changing as the realities of the vulnerability of wetlands to climate change become more obvious with [Partridge and Finlayson \(2022, this issue\)](#) raising the necessity of developing and implementing new approaches and policies given that maintaining the current ecological character of many sites, including Ramsar Sites, will be difficult. [Ibáñez and Caiola \(2022, this issue\)](#) consider the impact of sea level rise on coastal wetlands in the Mediterranean and point to the need for ecological engineering approaches to nature-based solutions to increase the resilience of vulnerable wetlands.

The adoption of nature-based solutions may require a more in-depth understanding of the consequences of management interventions. This is all the more the case as changes in wetlands will be complex and possibly unexpected. [Saintilan et al. \(2022, this issue\)](#) in considering the riverine forests in south-eastern Australia and mangroves in northern Australia provide evidence of climate-change increases in tree cover and extent occurring at the expense of wet grasslands. That is, one wetland type is expanding at the expense of another. The manner in which decisions are made about responding to such changes will be a critical determinant in the long term outcomes for the individual wetlands, their hydrology and biodiversity, as well as the people interlinked with them.

Future directions

Papers in this issue provide information on the assessment and management of wetlands and the development and implementation of the Ramsar Convention on Wetlands. The Convention has been in place for 50 years and has substantial global reach. Nevertheless, much remains to be done if wetland loss and degradation is to be stopped and reversed.

Given it is 50 years since the Convention was agreed is it time to question whether the existing model is still fit for purpose? That is, should major changes be made and different approaches debated and where agreed, adopted and implemented? This is one aspect outlined in a recent proposal to consider the rights of wetlands ([Davies et al. 2020](#)) as part of an explicit discussion about possibly reframing the Convention ([Finlayson et al. 2022b, this issue](#)).

The discussion around this extends beyond the papers in this special issue and has, for example, been taken on board by members of the Ramsar special interest section of the Society of Wetland Scientists as they grapple with the multiple issues still facing wetlands, with an overlay of global climate change, and increasing recognition that more effective participation of local communities would be beneficial ([Simpson et al. 2020](#);

Davidson *et al.* 2022). This brings challenges, and with that in mind, we recommend the papers in this issue to the diverse constituency associated with the Ramsar Convention on Wetlands and with the future of our global wetland resource.

Conflicts of interest

The Guest Editors are all members of the journal's editorial board, but did not at any stage have editor-level access to this manuscript while in peer review, as is the standard practice when handling manuscripts submitted by an editor to this journal. The authors have no further conflicts of interest to declare.

Data availability

No new data was generated in the production of this editorial.

Funding

The special issue and this editorial did not receive any specific funding.

Acknowledgements

We appreciate the efforts of the authors in preparing this special issue. Their contributions add to the wealth of knowledge about wetlands that has accumulated over past decades. Our links with the Convention also go back decades, starting when one of us came across the Convention in 1984 at the 2nd INTECOL Wetland Conference, and then as contributors to the Convention, including through its Scientific and Technical Review Panel. We thank the many people we have gainfully worked with through our respective employment situations over many years. The knowledge shared through our individual and combined journeys supports that presented in this special issue, and much more.

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Handling Editor: Nicholas Davidson