



Pulling It All
Together

5.1

The need for a Wetland Plan of Management (PoM)

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Abstract

A wetland Plan of Management (PoM) is the mother of all documents relating to the management of a wetland. Ideally, it is the repository of all the key information in wetland management. Without a PoM many scattered and isolated documents on wetland management lack cohesiveness and are ineffective in achieving management objectives. Possessing or preparing a wetland PoM is the first and foremost task that a wetland manager can undertake. There are numerous reasons why a PoM is a pre-condition for managing a wetland. These include legal bindings, due diligence, conservation obligations, securing funding, running commercial activities, seeking compensation, protecting heritage values, ensuring 'wise use' and maintaining 'ecological character' of a wetland, and many more. Preparation of a PoM is mandatory for all public lands in NSW. Without it, wetland viability can be uncertain. This article elaborates and emphasises the importance of writing a wetland PoM.

Introduction

A wetland Plan of Management (PoM), or as it is often called a Wetland Management Plan, helps manage a wetland in the most cohesive, effective and efficient way that is possible. It brings together in one document the very character and nature of the wetland. These include: its values, uses and functions; its stakeholders and users; its hydrological and biological diversity; proximity to and segregation from another nearby wetland; various management challenges and opportunities in terms of costs and returns; actions and activities that are essential to maintain and enhance its ecological character; and most importantly, its past, present and short- and long-term future potentials. Without all of the above being considered in one document in preparing the actions and activities for maintaining the wetland's natural values, the plan is often a piecemeal attempt and rarely helps manage the wetland. Details of these reasons are provided below.

Wetland delineation, mapping and categorisation

When it comes to managing a wetland, it is about an existing physical place; not a concept or an arbitrary object. For the physical land, there has to be a boundary map that is related to the land title and ownership within a geo-political setting. Such a land may not be covered entirely with water bodies. It may have an inseparable portion of it as higher land that is used for other purposes. A wetland in this instance would entail any physical boundary that is intimately associated with its structure and function. One may argue that in that case, does a wetland start at the land? And, where is the cut-off point? The general consideration is for a delineation that is contiguous and directly influenced by water inundation at any stage of the wetland's life-cycle. To ascertain this, a wet season is the easiest time to delineate. However, for the dry period often the best means is to look for signs of the extent of water plants (aka aquatic macrophytes) or sedges and grasses that withstand water logging for short or long periods. Such water plants can be reeds (*Phragmites australis*) rushes (*Typha* spp.), sedges (*Bolboschoenus* spp. or *Cyperus* spp.), mangroves (*Avicennia marina* or other mangrove species, coastal saltmarsh pants (*Sarcocornia quinqueflora*, *Sporobolus virginicus*, *Suaeda australis*, etc), etc. In fact, a wetland is often identified by the presence of such flora communities. One of the most

Additional Information 1

What is a Plan of Management?

A Plan of Management is a document that identifies issues affecting public open space, and outlines how that open space is intended to be used, improved, maintained and managed in the future.

(Source: Mason Park PoM.)

A Plan of Management is a written, circulated and approved document which describes a site or area and the problems and opportunities for management of its nature conservation, land form, or landscape features, enabling objectives based on this information to be met through relevant work over a stated period of time.

(Source: Eurosite toolkit for management planning.)

comprehensive and elaborate delineation exercises was commissioned by Port Stephens City Council (EcoLogical 2005).

Identification of a wetland boundary becomes a first step in deciding which exact place to manage, for what purpose and in what manner. A Wetland PoM makes it compulsory that wetland delineation is clearly known, often in the form of a detailed site map and usually as an inventory list. Such a map can also contribute to wetland inventory initiatives undertaken by State, national and international bodies and agencies. There may well be isolated documents or a separate map or inventory of the wetland/s but such a stand-alone inventory or map cannot be of better application than in a wetland PoM.

As the delineation is conducted, it also becomes obvious that there are various types or categories of wetlands. Their spread and contiguity, any infrastructure and services integral to their management and/or the servicing of any other public or private infrastructure becomes relevant. Such details become critical at least for the preparation of the PoM. Figure 5.1.1 highlights potential challenges in delineating a wetland boundary.



Figure 5.1.1. Northern Water Feature, a water quality management wetland in Sydney Olympic Park.

Value mapping – uses, functions, importance, significance

The relative ‘weight’ of a Wetland PoM, within and outside the organisation or the ownership, is largely dependent on how its values are portrayed. Without having a clear idea of the values of the wetland it becomes a theoretical exercise to write a PoM. Values can be ecological, financial, social (including spiritual), environmental, educational or otherwise. Listing the values and rating them on the basis of some hierarchy is possible in the format of a PoM. Allocation of financial (budgetary) and other resources often depends on the relative values of the wetland within the organisation’s other asset listings.

A wetland has values relating to one or more of uses, functions, importance and significance:

- uses: education, tourism, merchandising, water extraction/storage;
- functions: water quality, wildlife refuge/corridor, hydrological, ecological, social

- importance: national estate, nature reserve, tourism (say, Ramsar site);
- significance: hosts threatened species, acts as an iconic wetland site.

None of these values appears in any other document other than in association with the PoM. The key purpose of the Plan is to retain and (where possible) enhance those values.

Not clearly mapping the values generally leads to a start-stop process and arguments often arise around what the PoM was for. In such a situation, the risk is that the PoM preparation process is likely to lose its direction and keep adding to or deleting from the values list, ultimately risking the functionality of the wetland.

Stock take – what it currently has – species, ecosystems

The PoM is the only document that systematically lists the flora and fauna species, their abundance and distribution, as well as their absence/losses over time within the wetland. A complete list

of these can help adapting management of the relative priorities within the realities of ever decreasing resources available for management. When it comes to preparing the lists of flora, fauna and other important items, it is important to include a list of plants and animals that used to be existed in the wetland in the recent past decades but not spotted/recorded in the recent decades. Only a PoM can appropriately contain such a list. A species list, for example is critical because it will form the basis for assessing the impact of implementing the PoM to retain or enhance the ecological character (or ecological values) of the wetland. It is an important character check, so 'stock-take' on species diversity and abundance becomes critical.

Alongside with the list of flora/fauna, the ecological communities must be listed. Along with these two, come the relative importance; whether they are endangered, threatened, rare, iconic, economically important, locally significant, nationally registered or, internationally listed or declared as important.

Management drivers – objectives

Most wetlands are protected, conserved, managed and maintained as part of legislative requirements and due diligence. In a place where various types of wetlands are spread in many different localities and are under various different pressures, the abovementioned drivers for management become even more complex as legislation, guidelines, protocols or imperatives are applied. In such a complex climate the most logical place to list and assign is a PoM. It is a default repository for all the legal and moral obligations that are associated with the management of the wetland.

Integrated/Coordinated Management approach – brings various management plans and initiatives together, under one folder

It is not uncommon that various parcels of lands (wetlands) under the same ownership have separate documents created for their management over a period of time, and often by various managers. These can be written for different key purposes, by different individuals and under many different formats and layouts (sometimes different offices of one organisation follow different formats). In this chaotic atmosphere effective management of a wetland or a cluster of wetlands becomes almost an impossible task. The only way to resolve this chaos is to write a PoM that has

one guiding format and contains the plans for managing all aspects. Should a new wetland be added, or a need arise for writing a management plan for a newly added wetland, it can be added to the existing format as part of an adaptive management approach. A PoM must have sufficient flexibility to accommodate further changes without compromising its values, thus applying adaptive management as a tool.

Central coordination becomes critical when it comes to assigning tasks and allocating funds and other resources. A PoM helps such coordinated and concerted attention.

Over-arching policies and cohesive strategies

Places with greater operational diversity and complexity have policies and strategies for each category of its assets and properties. For example, the Sydney Olympic Park Authority's land has many complex uses. These include parklands (including wetlands and picnic areas), sporting arenas and venues, business complexes, light-industrial set-up and education hubs. The Authority's overarching policies and strategies include all these types of uses. Such a diversity and complexity has triggered writing a Parklands PoM (PoM 2010) as a statutory document. This document further identifies specific needs for managing its wetlands and waterways and takes the form of a wetlands PoM, where management policies and cohesive strategies are listed.

Identifies management responsibilities

Other than a PoM, hardly any other document systematically elaborates the specific management action/s. These specific management actions required to ensure that the values, uses, functions and integrity of the wetland are sustained. Associated with the management actions are the specific responsibilities for a particular action. Unless responsibilities are assigned, management actions are in most cases not undertaken. The other personnel who may be responsible for managing the wetland and implementing the management actions could be other managers who are involved in natural resources management, assets management, landscape management, or similar. The next level of senior management assumes further responsibility. A PoM will identify clear responsibilities for all the actions listed in the Plan. In an organisation where many such parallel managers are involved in managing wetlands, bear

Additional Information 2

(a) The legal binding for the Sydney Olympic Park Authority to prepare a PoM for the Millennium Parklands, which also includes all the wetlands managed by the Authority.

[s34 & s37 of the *Sydney Olympic Park Authority Act 2001*]

34 Preparation of plan of management

(1) The Authority, in accordance with any directions of the Minister, must prepare or ensure the preparation of a plan of management for the Millennium Parklands.

(2) The plan of management is to contain a detailed written scheme of the operations proposed to be undertaken in respect of the Millennium Parklands.

(3)

(4)

(5) A plan of management, and a report that includes a summary of public submissions and responses by the Authority, must be available for public inspection at, and purchase from, the office of the Authority during ordinary office hours.

(6)

37 Carrying out of plan of management

(1) The Authority is to carry out and give effect to a plan of management adopted by the Minister.

(2) The Millennium Parklands must be used and managed in accordance with the plan of management.

(3) Pending adoption of the plan, the nature and use of the Millennium Parklands cannot be changed.

(b) The legal binding for the Centennial Park and Moore Park to prepare a PoM for the Parklands, which also includes all the wetlands managed by the Trust.

The Centennial Park and Moore Park Trust was set up in 1983 under the *Centennial Park and Moore Park Trust Act*. The Trust is a statutory body reporting to the NSW Government. The Act also requires that the Trust prepare a Plan of Management to provide more detailed direction for the current and future management of the Parklands.

responsibility for each specific task and this ensures its implementation by avoiding duplication of actions.

Identifies budgetary requirements, priorities, long-term goals, asset replacement schedules

Whilst management of wetlands is a day-to-day business and the on-ground actions are listed in a PoM, the actual implementation requires a vast array of other important activities behind the scene. It is often seen that budget allocation, priority decisions, setting of medium- and long-term goals as well as asset replacement/repair and their maintenance decisions must be undertaken well in advance. It is conceivable that these decisions could be spread in discrete documents. This often creates overlaps, gaps, duplications, and negligence, especially from a funding point of view. A wetland PoM identifies indicative costs for implementing all management actions or activities. In most cases

when management actions are costed, it is easier to draw attention of the senior management to the funding purpose. This process of identifying costs for all actions, as opposed to cherry-picking a management action is more cohesive and coherent. Organisations, when finalising and signing-off on a PoM, either commit or initiate the process of sourcing the funds for its implementation. For this purpose, a PoM is the most effective and motivating document.

Sets operational restrictions and opportunities

The act of conserving and protecting a wetland and its environment makes it necessary to identify actions and activities that are likely to cause harm to the wetland. Examples include running of group tour activities that could potentially harm a wetland by physical trampling and other disturbances; kids riding bikes on saltmarsh areas; public throwing stones at migratory shorebird



Figure 5.1.2. Outdoor (wetland) education facilitates at Sydney Olympic Park.

habitats and dogs on mudflats and beaches. One restriction could be to limit the size of the group to say 15 and only permitting the group to stay within the close pathway inside the wetland. Setting limits to these activities can be determined from the carrying capacity of a wetland (or a parkland) system or sensitivity of the wetland. Another example could be allowing collection of plant and/or fish samples for research purpose. The organisation may like to promote wetland research and education, nevertheless, need to ensure that the wetland's integrity and serviceability is not compromised.

Whilst it may be possible to list such actions in a separate documents that deal with operational restrictions in a workplace, identification of such restricted actions in isolation and without considering the wetland in its entirety, may be misleading and ineffective. Listing of such restrictions in a wetland PoM safeguards its integrity.

Contrary to restrictions, there may be extra opportunities identified in and around a wetland. However, an example may include, allowing an annual boat racing activity on Australia Day in a

freshwater lake that also harbours rare waterbirds. Since a one-off activity during the non-breeding season is unlikely to affect the waterbirds, an annual activity of this nature may be possible. Including this activity in the organisation's annual list of activities and then inclusion of activities is a logical management option. Figure 5.1.2 shows an example of outdoor educational opportunities at Sydney Olympic Park.

Lists hydrological mapping, geo-technical settings, catchment positioning and profiling

A wetland's physical position in the geographical context of local and regional settings is very important for the wetland. A PoM captures such information for two main purposes: 1, how other wetlands and waterways in the local and regional scale may affect/influence this wetland in question from terrestrial- and surface-water view-point, wildlife corridor, weed spread and movement, pollution and erosion, cross pollination and genetic integrity; and 2, the wetland may be so large and so influential that the above-listed items become significant for the other local and regional wetlands

in such a way that it is almost a parent wetland. No individual documents can integrate this information better than a PoM.

Land history is important for a wetland. Whether the underlining geology is inherent or on built environment, such as former rubbish tip or a remediated land of some nature. A PoM ensures that such matters are dealt with sufficiently in the planning process.

Sets 'wise use' criteria

Ecologically Sustainable Development/Management is better termed as 'wise use' (Ramsar 2013) in case of wetland management, as adapted by the international wetland advocacy organisation, Ramsar. Wise Use essentially is insurance for the wetland from its potential degradation and loss of values over the years, especially by other urban development. This is achieved by writing a comprehensive PoM, specifically articulating potential and known threats to the wetland and the measures suggested for mitigating such threats. A comprehensive PoM can guarantee that 'Wise Use' principle and those effective management principles are implemented.

Wise Use of wetlands is currently defined as 'maintenance of their ecological character, achieving through the implementation of ecosystem approaches, within the context of sustainable development', which is the central piece of modern efforts to manage wetlands (Finlayson 2012). A PoM aims for wise use of the wetland whether the term is embedded in the document or not.

Sets reporting protocols and requirements

Reporting on a wetland's overall wellbeing, as well as the actions that are necessary to maintain its viability is important. This involves monitoring of the actions as they are implemented but (most importantly) monitoring the wetland health at the end of each action so that its influences can be traced in a systematic and measurable manner. An isolated project management report may capture whether the specific action was implemented or not but from its identification, implementation and seeing through the desired outcomes, only a PoM can capture and track the actions in the long run. Reporting on implementation of the action can also make recommendations as well as improvements to the actions. A PoM is the best way to ensure these.

Water storage, treatment and reuse corridor

Apart from their functions as a wildlife refuge and other ecosystem functions, wetlands serve significant water-related functions. Such functions involve stormwater storage, reuse, treatment through natural wetland functions, and recycling. All of these functions require careful planning. An organisation's natural resources management team may have a list of wetlands that are potential candidates for such functions and uses, nevertheless, unless the above are highly coordinated and are integrated with the wetland's PoM, their operation may remain chaotic and may never realise to their maximum potential. This could be related to the use of the wetland for functions that may interfere with other agendas and only a wetland PoM will contain and resolve all such potentially conflicting agendas.

Property protection from development consents, land ownership and acquisition plans

Wetlands are regularly acquired for development such as road and railway construction, construction of dams and barrages, warehouse and residential properties and factories and business establishments. The presence of an operating Wetland PoM containing wetland details, including management actions that are planned for the parcel of land contained within the wetland for which a development proposal is being made can save the wetland from development. For some wetlands a PoM is a statutory document, enacted by the respective government. Such a document cannot be ignored by any such proposals. Due to their natural settings, wetlands can be places where various mining activities are proposed. For example, a proposal to implement an open-cut coal mining activity. In this context, a legislated PoM can be used to protect the wetland from development.

Model wetlands and programs of regional and national importance

Often a wetland or a wetland system functions so well and is managed in such an exemplary manner that it can be considered an iconic or 'model' wetland. A 'model' wetland is a live example of implementing sensible tools and techniques for management, conservation or protection. State or national agencies often use these examples and such wetlands as a 'model'. A PoM is a repository for such information that includes value mapping of

each aspect of wetland. It also becomes an action in the PoM so that the purpose of promoting the management theme for the wetland to be used as 'model' is given priority. Only a PoM can better assure and administer these.

Funding agencies prefer a PoM

For any funding submissions from external agencies, whether it is to undertake a rehabilitation project or to implement a mega program of wetland reconstruction or research, it is very common that funding agencies demand a PoM pertaining to the wetland in mind. Unless a PoM is written and the context of the project/program for which funding is sought is clearly known, it is hard to convince them. Often, under some special funding programs, funding is possible but due to the absence of a PoM, the same funding cannot be guaranteed. There are examples of hastily writing a PoM to secure such a funding; naturally the PoM written in this manner is unlikely to be of a good quality. Writing different plans for the same wetland each time a funding submission has to be initiated should not be encouraged, it is better to write a single comprehensive PoM and use it as the need arises.

Partnership and co-management arrangements and Memorandum of Understanding (MoU); intergovernmental opportunities

Depending on individual circumstances, a wetland or a wetland system may have to be managed in partnership with another private/public agency. For this, a MoU is a common practice. In such a situation, the presence of a plan is a primary condition so that the delineation as well as task distribution is agreed upon and documented. Example of such a public-private co-management arrangement has been the Ramsar-listed Macquarie Marshes in western NSW. Both parties, the NSW Government and a private land owner, manage the agreed actions in the PoM for their respectively owned lands, which are Ramsar listed for their international significance, especially due to visitation of migratory shore birds. A wetland is unlikely to be listed as a Ramsar site unless it has an existing PoM – or as a pre-condition once it is listed. Another example is the management of the Newington Nature Reserve Wetland within Sydney Olympic Park by the Sydney Olympic Park Authority and another NSW State Government agency –

National Parks and Wildlife Service (NPWS), through a MoU. Presence of a PoM makes such co-management tasks much easier.

Heritage listing

Many coastal wetlands and some at the margin of the eastern side of the Great Dividing Range along the eastern belt of Australia are of aboriginal significance. A majority of these are either past middens or of other socio-cultural significance to the traditional owners of the land. A PoM will contain the specific details of such heritage listed areas so that they are not disturbed or damaged while managing the wetland.

Due to their uniqueness, and potential threats to their integrity, a wetland may be a candidate for World Heritage listing by international body such as UNESCO. A listing of this nature, although does not essentially require a PoM written prior to its listing, it nonetheless expects that one would be written soon after. The maintenance of the PoM is necessary for effective retainment of the World Heritage values.

Seeking compensation for damages

Under the ever-increasing tight budgetary situations that wetland (asset) managers face, often agencies take wetland management as a business approach to ensure cost-effectiveness in its management. This implies that such assets attract insurance policies and premiums, hence claims for damages. An insurance policy does require a PoM so that the insurer is satisfied that the wetland in question is managed as per an agreed action plan. Any insurance claims would examine the implementation of such action plans while investigating the insurance claim.

Engaging local volunteer groups

Management of wetlands are often possible only because volunteers are involved in monitoring, weed control and visitor interpretation. Often such engagements are formalised through a MoU and this requires a PoM as the guiding document. A PoM sets out the general nature of engagement and sets out areas of involvement as well as exclusions so that volunteers' effort can be optimised. A PoM is the most appropriate place to list areas of volunteer access and restrictions in a cohesive manner. Of course, insurance, safe work method, work health and safety and related guidelines and protocols are applicable.

Carbon trading

In the context of the growing interest in ‘blue carbon’ and the faster growing interest in carbon trading, wetlands are of interest due to their blue carbon potential (Saintilan 2013). A PoM will help in assessing its carbon potential and hence it becomes the basic document for a potentially significant financial commitment and gain.

Summary

Possessing a wetland PoM is the first and foremost task that a wetland manager can undertake. A wetland PoM is the overarching document for the management of a wetland together. It is the repository of all the information relating to the management of the wetland. Many scattered and isolated documents lack cohesiveness and are often ineffective. In many cases a PoM becomes a compulsory document, without which management obligations are not fulfilled. Funding and fostering wetland management actions require a PoM. Without a PoM wetland management will not be integrated and accomplished effectively. The PoM should combine all specifically written documents and be the ‘one stop shop’ to inform all management decisions. All land managers must prepare a wetland PoM to ensure their conservation and take advantage of the growing benefits from carbon trading.

Conclusions

A PoM is the document that brings all the management and operational aspects relating to a wetland. Although it takes considerable effort in writing a PoM, it is worth the effort and such a document can make the management task a lot easier and more effective. It is expected that where it is still not considered as a necessary document, it should be made so. If required, this process should be enacted and enforced, including monitoring and review.

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