Identifying wetlands for inclusion in water sharing plans

This document outlines how we identified wetlands from existing datasets for inclusion in the draft water sharing plans

Improving protection for wetlands

The department is responding to a Natural Resources Commission (NRC) recommendation to improve protection for significant wetlands when unregulated plans are replaced. Wetlands to receive protections include internationally (Ramsar), nationally and regionally significant wetlands within the plan area. For some plans this recommendation has been broadened to include culturally significant wetlands, where known.

The department, in its response to the NRC recommendation, committed to consider options to improve protection of significant wetlands during the plan replacement process. The department has developed a draft policy that includes a method to identify wetlands suitable to receive improved protection within each water sharing plan area and to outline the new restrictions that will apply. This method identifies wetlands based on an agreed set of criteria and the draft policy outlines restrictions to limit water extraction and development at current levels to ensure no further impact on those wetlands.

To identify the wetlands a review of existing mapping datasets for wetlands in NSW was undertaken and a process developed to identify wetlands to be included in draft water sharing plans (WSP). Wetlands that meet certain criteria are selected and placed on public exhibition with the draft WSP. The wetland list will be reviewed following any comments received during the public exhibition period. Wetlands that are identified in the draft WSPs will have additional protection to that already provided, by having rules to prohibit new or amended water supply works.

Scope for inclusion in WSPs

The role of the selection criteria is to include those wetlands containing water bodies (i.e. lagoons, billabongs, waterholes and warrumbools) that are considered nationally or regionally significant wetlands. Identified wetlands may include:

- those listed under the Ramsar Convention and/or the Directory of Important wetlands in Australia,

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- those that provide habitat for nationally or regionally recognised, threatened or vulnerable species, or migratory species recognised under international agreements (JAMBA, CAMBA, ROKAMBA or the Bonn Convention),
- wetlands that provide a significant refuge during dry times,
- wetlands that are a significant breeding ground for wetland dependent species, or
- a regional example of a particular type of wetland.

It is not proposed to include every wetland area in the WSP schedule, nor is it intended to include areas such as rivers or creeks or floodplain vegetation communities that rely on periodic inundation, as the rules in the WSP restrict new water supply works or trades which require a permanent or semi-permanent waterbody.

At present this process does not identify wetlands or lagoons based specifically on their cultural significance although wetlands with cultural significance may be included in the current existing mapping layers. In the future, identification of culturally significant wetlands may be carried out by appropriately trained personnel in consultation with local First Nations communities.

There are numerous mapping datasets available that identify wetland type environments, however many of these identify areas outside the scope of what is proposed for inclusion in a WSP. The following sections outline the databases used and the criteria for inclusion in the water sharing plan.

1. Existing WSP Schedules

Any wetland already listed in a WSP schedule will be included in the WSP remake no matter what criteria was used for its initial inclusion.

2. Ramsar listed wetlands

The Convention on Wetlands is an intergovernmental treaty, adopted in the Iranian city of Ramsar in 1971, that provides the framework for the conservation and wise use of wetlands and their resources. Wetlands included in the convention are considered wetlands of international importance.

All wetlands listed in the Ramsar convention for internationally important wetlands will be included in the WSP schedule.

3. Directory of Important Wetlands of Australia

The Directory of Important Wetlands of Australia identifies wetlands of national significance and was first published in 1993.

It is proposed that all wetlands included in the Directory of Important Wetlands of Australia (DIWA) will be included in the WSP schedule after review of the current status of the wetland.

4. Floodplain management plan Zone D

Floodplain management plans prepared under the Water Management Act identify a list of ecological assets which include wetlands and other floodplain ecosystems that depend on flooding to maintain their ecological character. If a floodplain management plan is available for the WSP, it can include a list of assets and/or a classification of the floodplain into zones.

The ecological criteria of Management Zone D include assets that are a landscape feature, such as a swamp, marsh, lagoon, anabranch or billabong with a high degree of floodwater dependency, and:

- a high degree of habitat complexity
- a history of supporting a diversity or abundance or waterbird, native fish or frog populations
- the functional capacity to act as an aquatic drought refuge
- recognition in, or protected by a local, state or Commonwealth environmental policy.

It is proposed to list any features identified in floodplain management zone D in the WSP Schedule.

5. Endangered ecological communities or threatened species listed under the Biodiversity Conservation Act 2016

Some water sharing plan areas will have endangered ecological communities or threatened species or provide habitat for those species. This makes the wetland nationally and regionally significant. These may include upland swamps or springs which should be afforded protection from new or amended works. It is proposed to include these in the WSP schedule.

6. Long term water plan environmental assets

It is proposed to include additional wetlands identified in Long term water plans (LTWP) not already listed in the data sources 1-5 above by assessing the mapping information included in the LTWPs prepared by the department as part of the Basin Plan Water Resource Plan process.

The LTWP identify environmental assets which meet the criteria set out in Schedule 8 of the Basin Plan. There are 5 criteria provided below:

Criterion 1: The water-dependent ecosystem is formally recognised in international agreements or, with environmental watering, is capable of supporting species listed in those agreements.

A water-dependent ecosystem is an environmental asset that requires environmental watering if it is:

a) a declared Ramsar wetland; or

b) with environmental watering, capable of supporting a species listed in or under the JAMBA, CAMBA, ROKAMBA or the Bonn Convention.

Criterion 2: The water-dependent ecosystem is natural or near-natural, rare or unique.

A water-dependent ecosystem is an environmental asset that requires environmental watering if it:

a) represents a natural or near-natural example of a particular type of water- dependent ecosystem as evidenced by a relative lack of post-1788 human induced hydrologic disturbance or adverse impacts on ecological character; or

b) represents the only example of a particular type of water-dependent ecosystem in the Murray-Darling Basin; or

c) represents a rare example of a particular type of water-dependent ecosystem in the Murray-Darling Basin.

Criterion 3: The water-dependent ecosystem provides vital habitat.

A water-dependent ecosystem is an environmental asset that requires environmental watering if it:

a) provides vital habitat, including:

   i. a refugium for native water-dependent biota during dry spells and drought; or

   ii. pathways for the dispersal, migration and movements of native water- dependent biota; or

   iii. important feeding, breeding and nursery sites for native water-dependent biota; or

b) is essential for maintaining, and preventing declines of, native water-dependent biota.

Criterion 4: Water-dependent ecosystems that support Commonwealth, State or Territory listed threatened species or communities.

A water-dependent ecosystem is an environmental asset that requires environmental watering if it:

a) supports a listed threatened ecological community or listed threatened species; or

b) supports water-dependent ecosystems treated as threatened or endangered (however described) under State or Territory law; or

c) supports one or more native water-dependent species treated as threatened or

d) endangered (however described) under State or Territory law.

Criterion 5: The water-dependent ecosystem supports, or with environmental watering is capable of supporting, significant biodiversity

A water-dependent ecosystem is an environmental asset that requires environmental watering if it supports, or with environmental watering is capable of supporting, significant biological diversity. This includes a water-dependent ecosystem that:

a) supports, or with environmental watering is capable of supporting, significant numbers of individuals of native water-dependent species; or

b) supports, or with environmental watering is capable of supporting, significant levels of native biodiversity at the genus or family taxonomic level, or at the ecological community level.

Protection of all criteria under the Schedule 8 of the Basin Plan are within the scope of the environmental objectives stated in the Water Sharing Plan. However not all features identified under these criteria are within scope of inclusion in the WSP. The following assessment of the spatial data outlines the process for inclusion in the WSP schedule.

Assessment of the LTWP environmental assets dataset

The mapping data used to determine the environmental assets in the long-term water plans was obtained by from the departments Biodiversity, Conservation and Science (BCS) Group. An initial assessment of this data used the Intersecting Streams Water Sharing Plan area as a pilot, followed by a comparison against the existing scheduled list of wetlands in the Border Rivers Unregulated River Water Sharing Plan to assess the method against a previous manual method of identifying wetlands.

The dataset is a compendium of different existing databases and includes many environmental assets which are rivers or streams and thus outside the scope of this assessment.

Suggestions for use in WSPs

All the criteria used to collate the mapping data for inclusion in the LTWP also generally meet the criteria for inclusion in the WSP. Many of the wetlands and lagoons that are being targeted for inclusion would meet at least one of the five criteria. However, many other wetlands also meet these criteria but are not appropriate for inclusion in the WSP as they are not water bodies that can be subject to water access rules.

Examples of features which are included in the LTWP database but do not meet the wetlands and lagoons classification would be rivers and creeks, or floodplain vegetation communities that, although they rely on periodic inundation for their survival, or do not retain water in a waterbody for long periods. These environments have their own ecological significance and are often addressed in WSP rules but are not being considered for inclusion in the WSP.

Exclusion of Criteria 3aii

It is proposed to exclude the 3 a) ii) sub criteria from the data set. This sub criteria refers to *pathways for the dispersal, migration and movements of native water- dependent biota*. Pathways for dispersal are very important ecologically but most of the features identified by this criterion are rivers or creeks with a stream order of three/four or higher. Features such as rivers and creeks are not considered appropriate for the wetlands and lagoons classification of wetlands that are subject to new prohibition of new water access works so have been excluded from selection.

Selection of named features

To further refine the LTWP dataset it is proposed to select only those features which are named, and only those features which include the following terms within the name: lake, lagoon, billabong, waterhole, wetland, spring, swamp, bog or warrambool. This selection will filter out many of the rivers and creeks, as well the floodplain vegetation communities that do not retain water for long periods.

The rationale for selecting named features is that these are the features which are generally of sufficient size or persist for long enough periods for the local community to recognise them as significant features. The names attached to these polygons are generally those recognised in official databases such as the Geographical Names Board of NSW. Selecting these particularly named features will only select features within the scope of inclusion, and exclude features such as rivers or creeks, or floodplain vegetation communities. Any feature that does not have a name cannot be selected as there is no information available to determine the type of feature it is.

It is recognised that not all significant features will be named in these datasets. However, without a more detailed assessment of all wetlands and lagoons, it is not possible to identify these within the timeframe available. It is also recognised that not all named features will necessarily meet the wetland criteria, however it is expected that any such features would be rare. For these reasons it is suggested that there be some flexibility in the final list of features to either include or exclude individual features based on local expert opinion provided written justification is provided.

Analysis of water persistence

Wetlands are selected for persistence using a comprehensive manual assessment to determine the risk of water take and regional significance of a wetland. This assessment uses high resolution Planet imagery and focuses on the following key considerations:

a) Persistence of the wetland during wet and dry periods: several images across wet and dry periods are assessed for the presence of a discrete water body. The purpose of this assessment is to identify pools that endure through varying climatic conditions, providing ecological benefits during periods of flood and drought.

b) Rate of drying: Monthly aggregate images following flood events are assessed to determine water retention in a pool and to confirm that the suggested polygon represents a discrete waterbody rather than an area of floodplain. Longer duration of persistence is prioritised for inclusion.

c) Ecological and Landscape Context: to ensure regionally significant pools are selected, the ecological value, relative persistence, and rate of drying of the pool is considered in relation to surrounding waterbodies. This includes:

   I. Relative persistence: In areas where multiple pools persist for extended periods, pools that show greater levels of persistence across a range of climate conditions are chosen, reflecting their regional significance.

   II. Relative ecological value: The persistence of a pool is balanced with the ecological value the pool provides. Floodplain pools that may be less persistent than surrounding pools but have strong supporting evidence of high ecological value are prioritised for inclusion.

Selection of unnamed features

As already mentioned there may be a case for consideration of unnamed wetlands which have not been selected in the process outlined above, provided there is supporting evidence from those with local or expert knowledge, be it from other agencies or members of the public. Supporting evidence could include how the unnamed feature meets one of the five criteria listed above in this section.

Any unnamed features suggested will be validated by using satellite imagery and water persistence data to exclude features such as farm dams, creeks that deliver environmental water, very small features or areas where there are no obvious water bodies.

Public exhibition period

It is recognised that the proposed list of wetlands has been generated from existing wetland datasets and that each of the proposed areas cannot be field checked.

Where possible, an online database of proposed wetlands will be provided on the departments website prior to the end of public exhibition period. Submissions will be welcomed on the suitability of individual wetlands to be included in the water sharing plan. These submissions will be reviewed prior to the final list of wetlands being included in the plan.

For more information on how the draft plan proposes to improve protection for wetlands please see the factsheet *Improving protection of wetlands in inland New South Wales* available on the department's website.