

## Abstract

The study area is the Macquarie Marshes wetlands (including the Macquarie watercourses) located approximately 180 kms north-west of Dubbo in northwest NSW. This was a study as part of the Integrated Monitoring of Environmental Flows Project (IMEF).

IMEF was a NSW wide scientific program established in 1998. IMEF provided ecological monitoring in relation to environmental flow rules. This in turn improved our knowledge of biodiversity and ecosystem processes in rivers and wetlands. The aim of this project was to establish relationships between wetland water regimes (flooding and drying cycles) and the diversity and abundance of wetland plants. The survey documents the distribution and percentage cover, and abundance (no. individuals per quadrat) of vegetation species and non-plant cover along permanent 100 m transects using a 5 m x 5 m quadrat at 10 m intervals in the Macquarie Marshes.

Transects were marked using permanent posts and a 100m tape measure was used to position quadrats at 10 m intervals along the transect.

The taxonomy (including genus and species) and exotic/native status, and functional groups (based on habitat and life history descriptions) has been checked against Plants of Western NSW (Cunningham et al. (1981)).

Over the course of the monitoring the team members undertaking the vegetation surveys varied largely. Broadly, there were three main monitoring periods, however: 2000 (Renee Kidson as lead). 2001-2006 (Chris Knight as lead) and 2008-2010 (Patrick Driver as lead).

Transects possibly moved slightly between the survey periods, mostly because of some lost site information but notably at Terrigal between the Kidson and Knight phases where the transect was moved 90 degrees to the original direction, ostensibly to be perpendicular with the channel as per the original method intent which was "At each site, a single fixed transect was placed perpendicularly to the stream or channel. Each transect is 100 m long and sampled at 10 m intervals. At each 10 m interval, a 5 m x 5 m quadrat is centred. This was some distance away at some floodplain and RRG sites. This is one variation within the methods described at:

There were many blanks in Chris Knight's field sheets which he advised meant zero, not no data, so analysis needs to know that might be an issue. I (PD) think we got this sorted correctly.

Dr Bruce Chessman lead the development of the field methods via a broad set of criteria were communicated at the state level. However, each valley lead developed their own set of methods that they saw suitable to the landscape and resources. For the Macquarie this was originally Renee Kidson (see Kidson et al 2012 analyses on year 2000 data). A balanced representation of site types was usually sought, and also some iconic sites. For example, the private Ramsar site Wilgara was later included by Patrick Driver. All sites required landholder approval and reasonable wet weather access.

Note: Data has complex issues that the data custodian can advise on. It would be advised and advantageous to collaborate with the custodian (Patrick.driver@dpie.nsw.gov.au in the analysis of this data.

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Note: If you would like to ask a question, make any suggestions, or tell us how you are using this dataset, please visit the [NSW Water Hub which has an online forum](#) you can join.

## Resource locator

[Data Quality Statement](#)

Name: Data Quality Statement

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Data quality statement for Wetlands Project-Hypothesis 7-Gwydir

Function: download

[Metadata Statement - Questionnaire\\_HYP7-Macquarie Groundcover Vegetation.pdf](#)

Name: Metadata Statement - Questionnaire\_HYP7-Macquarie Groundcover Vegetation.pdf

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Associated Metadata relevant to HYP7-Macquarie Groundcover Vegetation.pdf

Function: download

[1-Kidson et al 2012.PDF](#)

Name: 1-Kidson et al 2012.PDF

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

A compilation of field and statistical studies on wetland replenishment responses, vegetation composition, and seasonal influences in the Macquarie Marshes during the extremely wet year of 2000, finalised by Patrick Driver.

Function: download

[2. 2000 IMEF plant data.xls](#)

Name: 2. 2000 IMEF plant data.xls

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Associated data file from the above Kidson et al. (2012) report, containing vegetation data collected during 2000.

Function: download

[3. Macquarie Operations Manual.pdf](#)

Name: 3. Macquarie Operations Manual.pdf

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Chessman et al. (2003). IMEF Scientific and Technical Operating Procedures for the Macquarie Valley. This manual provides the monitoring framework, policy context, and methodology for environmental flow monitoring in the Macquarie Valley.

Function: download

[4. Chessman 2003 \\_imm00a.pdf](#)

Name: 4. Chessman 2003 \_imm00a.pdf

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Overview of all IMEF monitoring methods, rationale, and key procedures, forming the backbone for standardised monitoring protocols.

Function: download

[5. Method 18a Wetland vegetation survey - Large wetlands.pdf](#)

Name: 5. Method 18a Wetland vegetation survey - Large wetlands.pdf

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Chessman et al. (2007). A key IMEF method for monitoring large wetland vegetation communities across the Gwydir and Macquarie Marshes. Originally included as Appendix 4 in the

Function: download

[6. 2003 Baker marshes wildlife alloc 2003.PDF](#)

Name: 6. 2003\_Baker marshes wildlife alloc 2003.PDF

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Assesses vegetation response and inundation extent across twelve IMEF sites following the 2002 Wildlife Allocation release, highlighting the interplay between artificial water releases and rainfall impacts on vegetation condition.

Function: download

[7. 2004 Love\\_Macquarie O&P 2002-03.pdf](#)

Name: 7. 2004 Love\_Macquarie O&P 2002-03.pdf

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Details system inflows, ecological conditions, and monitoring findings for the Macquarie Marshes during a dry year. Evaluates the short-term ecological responses to active water releases (Wildlife Allocation releases) and local rainfall events.

Function: download

[8. Chessman et al 2003 imef for 1998-2000 as on web.pdf](#)

Name: 8. Chessman et al 2003 imef for 1998-2000 as on web.pdf

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

A state-level report evaluating early environmental flow outcomes. Findings showed limited ascribable environmental benefits, with some evidence of support for bird breeding events, though hydrological and ecological modelling capabilities were still under development.

Function: download

[9. 2007\\_05 marshes eflow report.pdf](#)

Name: 9. 2007\_05 marshes eflow report.pdf

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

This report by Driver & Knight (2007) documents the 2005-06 environmental flow event (~84,000 ML) in the Macquarie Marshes and its impact on groundcover plants, highlighting varied site responses influenced by dry conditions and transmission losses.

Function: download

[10. 2008\\_DWE report to EFRG May.pdf](#)

Name: 10. 2008\_DWE report to EFRG May.pdf

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

The 2007-08 IMEF report describes on-ground environmental flow responses, with notable vegetation response in Buckiinguy Lagoon and Monkeygar Swamp, and limited response in parts of the Northern Nature Reserve.

Function: download

[11. monitor\\_2009\\_macquarievalley\\_report.pdf](#)

Name: 11. monitor\_2009\_macquarievalley\_report.pdf

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

This report evaluates monitoring activities and early outcomes

for water sharing plans in the Macquarie Valley (2008–09), showing positive ecological responses despite drought impacts.

Function: download

[12a. 2010a Michener & Driver 2010\\_2009-10 E-flow report to EFRG without appendix.pdf](#)

Name: 12a. 2010a Michener & Driver 2010\_2009-10 E-flow report to EFRG without appendix.pdf

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

The main report documents strong vegetation and wildlife responses to 2009–10 environmental flows across five IMEF sites, with collaborative monitoring alongside DECC and UNSW.

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[12b. 2010b\\_Appendix 2009-10 E-flow report to EFRG.pdf](#)

Name: 12b. 2010b\_Appendix 2009-10 E-flow report to EFRG.pdf

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

The appendix provides detailed data, site observations, and invertebrate sampling results complementing the main 2009–10 environmental flow report.

Function: download

[13. Macquarie Marshes - vegetation data 2001-10.xls](#)

Name: 13. Macquarie Marshes - vegetation data 2001-10.xls

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

This Excel file compiles all IMEF vegetation monitoring data from 2001 to 2010 (excluding year 2000).

Function: download

[14. Vegdata Oct-2009-DECC overlap sites.xls](#)

Name: 14. Vegdata Oct-2009-DECC overlap sites.xls

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

This dataset contains vegetation monitoring results from three additional DECC-overlapping sites for method and outcome comparison, as referenced by Driver & Michener (2009).

Function: download

[15. Workshop presentation \\_ Delivering Science to Water Committees.PDF](#)

Name: 15. Workshop presentation \_ Delivering Science to Water Committees.PDF

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Presentation on how to ensure quality data for long time periods which discusses both (i) IMEF, and (ii) Other concurrent data plant survey.

Function: download

[16. MM-sites and transects.zip](#)

Name: 16. MM-sites and transects.zip

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

This ZIP archive contains locational data for IMEF monitoring sites and transects used in the vegetation data cleanup file.

Function: download

Unique resource identifier

Code	38cbb56-fc4d-4ee0-9d44-51a5c76c49f3
Presentation form	Table digital
Edition	1.0
Dataset language	English
<b>Metadata standard</b>	
Name	ISO 19115
Edition	2016
Dataset URI	<a href="https://datasets.seed.nsw.gov.au/dataset/38cbb56-fc4d-4ee0-9d44-51a5c76c49f3">https://datasets.seed.nsw.gov.au/dataset/38cbb56-fc4d-4ee0-9d44-51a5c76c49f3</a>
Purpose	To monitor the first environmental flow releases as part of the development of the NSW Water Sharing Plan development and monitoring
Status	Historical archive
Spatial representation type	None
<b>Spatial reference system</b>	
Code identifying the spatial reference system	4283
<b>Topic category</b>	

<b>Keyword set</b>	
keyword value	VEGETATION VEGETATION-Floristic FAUNA-Invertebrates WATER-Quality
<b>Originating controlled vocabulary</b>	
Title	ANZLIC Search Words
Reference date	2008-05-16
<b>Geographic location</b>	
West bounding longitude	145.94
East bounding longitude	150.36
North bounding latitude	-33.95
South bounding latitude	-29.9
NSW Place Name	Macquarie
<b>Vertical extent information</b>	
Minimum value	-100
Maximum value	2228
<b>Coordinate reference system</b>	
Authority code	urn:ogc:def:cs:EPSG::
Code identifying the coordinate reference system	5711
<b>Temporal extent</b>	
Begin position	1999-01-07
End position	N/A
<b>Dataset reference date</b>	
<b>Resource maintenance</b>	
Maintenance and update frequency	As needed
<b>Contact info</b>	
Contact position	Data Broker
Organisation name	NSW Department of Climate Change, Energy, the Environment and Water
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Responsible party role	pointOfContact

Limitations on public access

## Responsible party

Contact position	Data Broker
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Responsible party role	pointOfContact

## Metadata point of contact

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Responsible party role	pointOfContact

**Metadata date** 2025-03-31T02:47:21.135005

**Metadata language**