

Case Study: Coordinating catchment-scale aquatic weed risk management.

Assisting water managers, policy makers and planners to understand existing aquatic weed threats and provide the tools and information to reduce the risk of spread

Aquatic weeds threaten the Murray-Darling Basin

The waterways of the Murray Darling Basin (MDB) support vital agricultural and environmental systems across four states: Queensland, New South Wales (NSW), Victoria (VIC) and South Australia (SA). Water movement in the MDB is intensively managed at national and state levels for irrigation and environmental purposes.

Aquatic weeds can severely impact production and environmental assets. For instance, sagittaria causes significant impacts to irrigation channels, waterways and wetlands in the southern MDB (AWC 2012). Severe infestations block irrigation channels and drains, increase silt accumulation, and restrict flows in wetlands and natural waterways, adversely affecting biodiversity and impacting on recreational activities. Sagittaria is difficult and expensive to control: annual costs to irrigation managers alone can exceed \$2 million (AWC 2012). Continued spread of sagittaria threatens irrigation assets and important wetlands, including RAMSAR sites such as the Kerang wetlands and Gunbower forest in Victoria, and the Chowilla floodplain in South Australia.

Protecting the MDB from invasive plants is a high priority (Low 2009). While water managers are aware of invasive species issues, there is not always sufficient, timely or relevant information available to them on aquatic weed risk (e.g. weed identification or distribution data). Without effective coordination and planning between cross-tenure, cross-border partners, water delivery for irrigation or environmental purposes may create pathways of spread for high-risk aquatic weeds.

The Murray-Darling Basin Aquatic Weeds Project

Since 2004, a Tri-State Taskforce (NSW, SA and Victoria) has been working to coordinate improved management of sagittaria in the MDB. The development of the *Sagittaria Tri-State Plan* encouraged coordinated control programs and support for research on sagittaria biological and chemical control. Information and research collated in this plan supported a national effort which saw sagittaria successfully listed as a Weed of National Significance (WoNS) in 2012. As part of this collaborative effort among all States and Territories and the Commonwealth Government, national strategic plans were developed jointly with affected stakeholders for each WoNS species. These plans contain agreed priority actions to reduce the spread and impact of each weed. WoNS strategic plans recognise local, regional and state priorities, and contain management actions that are relevant and achievable at local and regional levels. In addition, each aquatic WoNS plan contains targeted actions to prevent spread in nationally important waterways, such as the MDB.

In response to the threat of aquatic weeds to the MDB, the WoNS aquatic weed coordinator developed a collaborative project, in conjunction with regional weed managers in the NSW and Victorian MDB, to investigate potential aquatic weed risks and spread pathways via water delivery initiatives. The following five species were identified as some of the key high-risk aquatic weeds to

the MDB, based on an aquatic weed risk assessment (Champion, et al 2008), and form the focus of this project:

- sagittaria (*Sagittaria platyphylla* (Engelm.) J.G.Sm.)
- water hyacinth (*Eichhornia crassipes* (Mart.) Solms)
- alligator weed (*Alternanthera philoxeroides* Mart.)
- cabomba (*Cabomba caroliniana* A. Gray)
- Mexican water lily (*Nymphaea mexicana* Zucc.).

Existing management strategies and on-ground initiatives pertaining to these five high-risk aquatic weeds were identified. This encompassed regional, state and national groups and their actions. This allowed the project coordinator to gather support across a broad network, and support existing work by encouraging a coordinated approach to management.

Coordination across weed and water networks: A vast network of water planners, advisors and managers already exists across the MBD. By engaging through their networks, the national aquatic WoNS coordinator was able to raise the profile of aquatic weed risk, provide and seek information, and determine what further tools were needed to assist water managers with understanding and abating the risk. This involved coordination between the following project partners, and others across the MDB region:

- Western Riverina Noxious Weeds Advisory Group (WRNWAG)
- NSW Office of Environment and Heritage (OEH)
- Environmental water planners
- Irrigation agencies
- Regional Natural Resource Management (NRM) officers
- Local Government Weeds Officers
- Local Land Services and Catchment Management Authorities
- Community-based water advisory groups, which typically include representatives from key water stakeholders such as: the irrigation industry, State and Commonwealth water agencies, NRM groups, research organisations, private landholders and non-government organisations.

Capacity building: Project partners conducted numerous engagement activities including delivering presentations and conducting site visits to identify the tools weed and water managers required to reduce the risk of aquatic weed spread. [*Recognising Water Weeds*](#) courses (I&I 2009) were held across the NSW Riverina region. These courses provided water and weed managers with the basic skills to identify high-risk aquatic weeds in order to better understand and reduce the impact of aquatic weeds to the MDB.

A survey was conducted before and after the *Recognising Water Weeds* courses to assess the effectiveness of the course in increasing participant's knowledge of aquatic weeds and their management, and to seek suggestions on tools or resources that could be provided in future to help maintain or improve aquatic weed management skills. The most common suggestions from water and weed managers were:

- Training and resources for aquatic weed identification and control,
- Current and accessible high-risk weed distribution information,
- Advice on how to prevent spread via water delivery,
- Contact information for weed experts.

More information can be found in the [Case Study: Surveying NRM managers in the Riverina to determine aquatic weed resource needs](#). Alternatively, a comprehensive analysis of results can be found in the [Aquatic Weeds Training and Awareness: Survey results from the New South Wales \(NSW\) Murray Region](#) report.

A dynamic solution: whole-of-Basin aquatic weeds toolkit

In response to the requests outlined above, a *Murray-Darling Basin Aquatic Weeds Toolkit* was developed in the form of a website. The toolkit is a ‘living document’ that can be used by weed and water managers and other stakeholders across the MDB to influence the development of MDB-related water plans or other plans that should include risk abatement of invasive aquatic weeds.

Components of the toolkit include:

- information on high risk aquatic weeds: to improve understanding of the risks and impacts of aquatic weeds in the MDB;
- maps of high priority infestations and environmental assets at risk: to identify priority areas where strategic weed management or water delivery is required to prevent further spread;
- an aggregation of existing weed management priorities, strategic plans, information and research: to provide guidance on how to incorporate relevant actions and risk management strategies from existing plans into future plans or activities;
- a dedicated ‘sagittaria portal’ where weed and water managers can store and/or share information on this high-impact aquatic weed;
- MDB-wide weed and water managers contact list: to encourage sustained Basin-wide partnership and communication between managers and facilitate future coordinated aquatic weed management.

The MDB Aquatic Weeds Toolkit is freely available on the [WRNWAG website](#). The toolkit components and other engagement activities undertaken in this project aim to link weed and water managers across local, regional and state borders to foster strategic and coordinated management of aquatic weeds, and help reduce their spread and impacts in the Murray-Darling Basin.

References:

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