

Strategic Management of Aquatic Weeds

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Sydney Water manages a large number of wetlands and creek systems in the Sydney basin. Managing aquatic weeds, particularly those declared 'noxious' in such assets is a challenge and is seen an integral part of a natural asset management function. This presentation aims to discuss some key issues involved, and illustrate the strategic approach taken.

The main aquatic weeds challenging Sydney Water include floating, submerged, emergent and shoreline species. These include the three WoNS aquatics- Alligator Weed (*Alternanthera philoxeroides*), Salvinia (*Salvinia molesta*) and Cabomba (*Cabomba caroliniana*), and others- Water Hyacinth (*Eichhornia crassipes*), Primrose Willow (*Ludwigia peruviana*), Milfoil (*Myriophyllum aquaticum*), Hornwort (*Ceratophyllum demersum*) and Mexican Water Lily (*Nymphaea mexicana*).

Collectively, these aquatic weeds have significant 'triple bottom line' impacts, which are environmental (invasive species displacing native species, reducing biodiversity), economic (annual, recurrent costs of control), and social (reduced recreational value of water bodies and waterways).

Key principles, which underpin aquatic weed management include:

- Being strategic in approach, integrating concordant control methods (manual, mechanical, physical, chemical and biological control),
- Acting locally ('site-specific') while thinking globally ('catchment-context'), and
- Understanding connectivity between ecosystem components (water quality, water clarity, relationship between nutrients, grazing fish and aquatic plants), and
- Enabling tolerable ecological manipulations (such as weed replacement by non-weedy natives).

Successful management of aquatic weeds requires **direct action**, as well as **indirect action**. These comprise:

- A commitment to long-term ecosystem management,
- Coordination of actions across catchments (inter-agency co-operation),
- Preventative action (early detection and elimination of small infestations),
- Community, industry (aquarium and nursery trade) and stakeholder education, and
- Training (weed contractors).

The major **challenges** of strategic aquatic weed management are:

- (1) Cost-effective control, integrating the limited number of effective methods available (key component-bio-control agents);
- (2) More effective and safe methods of control, minimising potential adverse environmental impacts of recurrent control action on waterways (such as reducing reliance on herbicides);
- (3) Balancing the beneficial role of aquatic weeds (plants) vs. control; and
- (4) Global spread of non-indigenous plants and problematic native species.
