



Limitations of manual/physical control:

- Labour intensive and time consuming
- Requires good access and appropriate methods for waste management
- Best in areas with an even substrate free from obstructions
- Fragments readily escape, very difficult to remove all fragments and high potential for regrowth
- Nets will be required to trap and remove fragments
- Repeat visits will be required
- Physical removal only effective when plants are not 'collapsed'

Installation of light inhibiting materials:

- Install light inhibiting material e.g. jute matting of a recommended maximum weave density 4 mm²; weight 187 g/m²
- The matting should be stretched out and laid -flush to the bottom over the infested area/areas
- Attach some small weights around the edge of the matting which will help fast submersion and accurate placement - Jute matting tends to saturate rapidly on contact with water and sinks within minutes of laying it on the lake surface; this makes it easy to place accurately, particularly in windy conditions



- To avoid any damage to other species it would be advisable to have an ecologist present during installation of jute matting
- As the material is permeable it permits gases to escape and prevents the development beneath the matting of anoxic conditions
- After a period of at least four months, the underlying invasive weeds should be eradicated and native species should start to grow through the weave of the jute matting within seven months of it being placed over the invasive weeds
- It is recommended that an annual survey is carried out until three full growth seasons have passed without regrowth of IASs

Benefits of installing light inhibiting materials:

- Particularly good method at sites in which the plant has replaced native charophytes, which are able to grow through the weave of the matting and re- colonise within 2 months of deployment
- Jute matting is made from a natural, biodegradable fibre means there will be no unnecessary costs incurred in having to remove the material from the water once it has achieved its purpose
- The use of jute matting for aquatic weed control has the additional demonstrated benefit of facilitating the regeneration of native Charophytes and other vegetation that can germinate from seed reserves and re-establish in the absence of the invasive weed
- Jute matting eventually biodegrades



Northern Ireland Environment Agency
Gníomhaireacht Comhshaoil Thuaisceart Éireann
Northern Ireland Environment Agency

An Agency within the Department of
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and Rural Affairs
www.daera-ni.gov.uk

Gníomhaireacht de chuid na Roinne
Talmhaíochta, Comhshaoil
agus Gnóthaí Tuaithe

An Agency w/in the Department o
Fairmin, Environment
an' Kintra Matthers

Limitations of installing light inhibiting materials:

- Large roles of jute may be required
- The jute must somehow be weighed down – can be difficult
- Large areas may require specialised equipment to lay
- Difficulty/expense in implementing at a large scale
- Relatively new method without an extensive local track record





Figures 1&2 Different methods of laying jute matting



Figure 3 Jute matting secured in situ on the lake bed

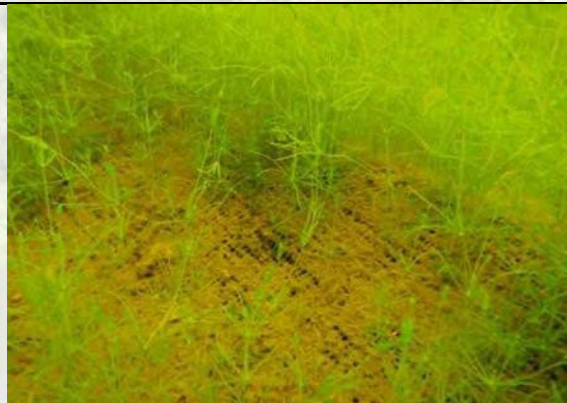


Figure 4 *Nitella flexilis* growth on the jute matting 8 months after application (photograph by Joe Caffrey)

Environmental Control

- Emergent species such as Parrots feather (*Myriophyllum aquaticum*) are not tolerant of fast flow and do not appear to grow in rivers or fast flowing streams; increasing flow by narrowing slow flowing channels may be a way of controlling the growth of this species
- This effect is achieved when the plant itself grows in slow flowing systems and may result in self-limitation in this type of channel
- Increasing shade can be achieved by using light barriers such as UV sheeting weighted down (see previous note)
- The planting of trees along the south side of water bodies or by placing a floating opaque material over the water surface in early spring has also been suggested; shade needs to be maintained for at least twelve months to give good control
- Because of the association with eutrophic waters a reduction in the nutrient loading to the water may help reduce the competitive ability of this species and lead to a re-establishment of the native species; this can be achieved by buffer strips if non-point nutrient sources can be identified and by a reduction in phosphate loading from other point sources such as sewage works and farm effluents
- Often an abundance of invasive aquatic weeds can be an indicator of too many phosphates entering the water body and excessive effluent outlets, sometimes illegally, should be identified and rectified where possible

Chemical control:

Limitations of Chemical control:

- The Department does not support unjustified general, non-specific chemical control of aquatic invasive species due to potential impacts on non-target species and residual impact and persistence in the environment
- The lack of associated rigorous monitoring to appraise effectiveness of control methods
- The potential noncompliance with the Water Framework Directive
- Before undertaking a chemical control programme, a transparent cost/benefit analysis identifying the risks associated with intervention options and risks of non-intervention must be carried out



A transparent cost/benefit analysis of management options should include the following:

- Knowledge of the invasive species occurrence/distribution at and around the location
- Thorough knowledge of the invasion ecology and life history of the species
- An assessment of the potential impacts based on invasive history elsewhere and similarity of local habitats, this should include the identification of;
- The sensitivity of native species, habitats and ecosystems present in respect to international, European and domestic legislative obligations and concerns
- Impacts on economic and amenity values
- Potential impact of both the invasive alien species and the proposed control methodology
- Assessment of known impacts of potential control methods on non-target species and residual impacts in the environment
- Efficacy of control and eradication methods available based on assessment of experience elsewhere and on site, if applicable
- Due consideration of the legal status of the options considered
- Other human, animal and plant health issues
- Targeted and appraised chemical control does have a role to play in management of aquatic invasive species, but should be seen as a last resort, after all other alternative control options have been thoroughly considered and assessed
- Consider if you can successfully and safely carry out the work or if professional practitioners, with relevant training and certificates should undertake the work
- A planned schedule of works with disposal procedures for waste predetermined

Re-vegetation

- Most ponds should be left to natural colonisation by plants and animals; research shows water plants usually return quickly following restoration from dormant seed banks
- It is important to avoid unnecessary stocking of plants from garden centres and nurseries which can lead to major problems with invasive species

- However, barren water bodies remaining after control action should be revegetated if it does not occur naturally
- Species that perform well within high soil moisture or riparian/wetland sites, such as stream bottoms or wet meadows that are sub-irrigated for at least a portion of each growing season, include numerous native species
- Native sedges & rushes/bulrushes are grass-like species used extensively in riparian and wetland revegetation projects because of aggressive root systems and wildlife habitat value

Biological control:

Trials on some species have been carried out in GB and Ireland but as yet Northern Ireland have not used any of the biological control methods available.

You can read about the latest research on the Cabi website:

CABI. [Progress with Weed Biocontrol Projects](#). March 2023

Other resources:

<http://invasivespeciesni.co.uk/download-resources/site-management-resources/>
<http://invasivespeciesni.co.uk/what-can-i-do/check-clean-dry/>
<http://invasivespeciesni.co.uk/what-can-i-do/check-clean-dry/check-clean-dry-resources/>
<http://invasivespeciesni.co.uk/list-of-identification-guides/>
<https://invasivespeciesni.co.uk/what-can-i-do/be-plant-wise/>
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