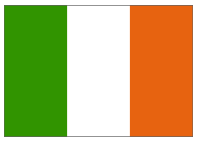

WFD Alien Species Risk Assessment Methodology

GUIDANCE FOR PRACTITIONERS ON THE METHODOLOGY TO BE APPLIED IN IRELAND'S RIVER BASIN DISTRICTS

Paper by the Working Group on Characterisation and Risk Assessment

Surface water guidance document

This is a practitioner's guidance paper on the application of a proposed **Alien Species Risk Assessment Methodology**. It documents the principles to be adopted by River Basin Districts and authorities responsible for implementing the Water Framework Directive in Ireland. This is a working draft describing a method that will evolve as it is trialled, and will be amended accordingly.

REVISION CONTROL TABLE

Status	Approved by National Technical Coordination Group	WFD Requirement	Relevant EU Reporting sheets	Date
Final	March 2005	Impacts and Pressures	None	March 2005

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Acronyms

CIS	Common Implementation Strategy
CWB	Coastal water Body
ROI	Republic of Ireland
TWB	Transitional Water Body
UK TAG	United Kingdom Technical Advisory Group
WB	Water Body
WFD	Water Framework Directive

1. Introduction

Alien species, are organisms which are non-native to the ecosystem under consideration and whose presence is likely to be ecologically undesirable. They are also defined as a species, subspecies or lower taxon, introduced outside its natural range. Alien species are not elements of normal ecological succession of new or disturbed habitats, or species' natural expansion of range. In many situations, alien species have been deliberately introduced anthropogenically.

Whilst the text of the Water Framework Directive (WFD) does not explicitly mention alien species, it has been considered, that, what is listed in Annex II (1.4) under Identification of Pressures, as, '...estimation and identification of other significant anthropogenic impacts on the status of surface waters', includes alien species. CIS Guidance document "*Guidance for the analysis of Pressures and Impacts in accordance with the Water Framework Directive* (2003)" lists the introduction of alien species, along with fisheries, under the heading of 'biological pressures'.

The EPA convened an *ad hoc* Alien Species Group in June 2004 to discuss the pressures and impacts of alien species within the context of the WFD and to devise a list of species of potential high impact on water bodies similar to, or the same as, that adopted by Northern Ireland from the UK TAG document *Guidance on the Assessment of Alien Species Pressures*. A list of 8 aquatic alien species were identified as those posing most threat to the attainment of the environmental quality objectives of the WFD within Ecoregion 17 and Atlantic Ocean (1). In addition to these 8 species, the appendix of the Alien Species Group document (EPA 2004) includes 13 other High Impact species, 25 Low Impact species and 58 species of Not Fully Known impact. The list of 8 species will form the principal focus of the current risk assessment exercise. Apart from Dace and Nutall's Waterweed, all 8 are included in the ten species identified in the UK TAG Alien Species guidance document. There are, therefore, 4 additional species on the UK TAG list, three of which do not occur in Ireland while the fourth was considered, by the Group, to be native to the British Isles (EPA 2004), p.6).

Table 1.1 Risk Assessment Focus List

1.	*Azolla filiculoides*	Water fern	Water Plant
2.	*Myriophyllum aquaticum*	Parrot's feather	Water Plant
3.	*Crassula helmsii*	New Zealand pigmyweed or Australian swamp stonecrop	Water Plant
4.	*Hydrocotyle ranunculoides*	Floating pennywort	Water Plant
5.	*Elodea nuttallii*	Nuttall's waterweed	Water Plant
6.	*Sargassum muticum*	Japanese weed or wireweed	Seaweed
7.	*Dreissena polymorpha*	Zebra mussel	Mussel
8.	*Leuciscus leuciscus*	Dace	Fish

For most species, whilst High Ecological Status may not be attainable where colonisation is recorded, Good Ecological Status may be achieved if a derogation is assigned, if necessary, for the presence of Alien Species. It is considered, therefore, that the presence of alien species should not lead to a change in risk class overriding other risk assessments, but rather that the Alien Species Risk Assessment should give rise to a 'risk comment' assigned to the water body for incorporation during the development of the programme of measures.

2. Aims and Scope

The aim of this practitioner's guidance is to further develop the process commenced by the EPA-convened *ad hoc* Alien Species Group, towards producing a practical methodology for RBDs to apply to assess water body risk. The scope of this risk assessment includes all natural surface water categories: rivers, lakes, coastal and transitional water bodies. It will structure the examination of risk based on GIS records of present occurrence of any of the eight species on the focus list (Table 1.1) produced by the Alien Species Working Group.

3. Datasets

GIS Layer: Alien_Sp140305.shp

This GIS layer has been generated by the EPA and delineates locations where records are available for the occurrence of each of the eight species on the focus list.

(Available at: www.lgp,ie/wfd in Documents/WFD Technical Documents/GIS Data/EPA_Alien Species)

4. Methodology

4.1 Dataset Preparation & Assumptions:

- In preparation, alien species records for Artificial Water Bodies (AWBs) such as canal systems were separated from those occurring in natural surface water categories. AWBs are listed in Chapter 4 of the Article 5 Characterisation Report (www.wfdireland.ie).
- Records of alien species' occurrence obtained from the Botanical Society of Britain and Ireland (BSBI) do not refer to exact locations and therefore were retained for the assessment as a precautionary measure. Exact details on locations will require gathering further information) to ensure any measures developed are targeted at locations concerned.
- Confirmed records of alien species in golf courses or ornamental gardens were considered, for the purposes of this assessment, part of the natural system due the fact that they would not be addressed by measures to achieve Good Ecological Potential developed for formally identified pAWB.

4.2 Natural Surface Water Bodies

The species-by-species approach for alien species risk assessment of natural water bodies (non-AWBs) was developed in consultation with national experts and was applied as summarised below (Table 4.1). Water bodies not assigned a risk class as per the methodology outlined were left blank under the Alien Species Risk Assessment. 'Confirmed records' refer to those indicated by the above GIS Layer.

Note: Lakes within a river water body with a risk class were assigned the same risk class as the river water body. Although the range of Dace *Leuciscus leuciscus* does not extend to first order streams, no water body contains only first order streams. The 'system' approach applied for this species therefore encompassed all water bodies up to the source, as these water bodies include second order streams where the species can be found.

Table 4.1: Alien Species Risk Assessment for natural water bodies (non-AWBs).

	Species	Water Bodies containing confirmed Records	Other water bodies to be assigned risk class	RBD specifics based on expert knowledge
1	***Azolla filiculoides***	1a (to include river, lake and transitional water bodies).	1b (downstream water body immediately adjacent to water body with a confirmed record, including TWBs)	ERBD: 1a to water body containing Botanic Gardens records. If Tolka downstream is a different water body, do not apply any risk category to it as conditions are not suitable (fast flowing) for colonisation. If all in the same water body, assign 1a. SERBD: 1a to all River Barrow main channel water bodies from Athy to Saint Mullins, (and d/s where w/b contain records) Other RBDs: as per general approach for all records.
2	***Myriophyllum aquaticum***	1a	1b (downstream water body immediately adjacent to water body with a confirmed record.)	All RBDs: Only record in ROI is inland in the ERBD.
3	***Crassula helmsii***	1a	1b (downstream water body immediately adjacent to water body with a confirmed record, to include the first TWB.)	ERBD: 1a to water body containing Botanic Gardens records. If Tolka downstream is a different water body, do not apply any risk category to it as conditions are not suitable (fast flowing) for colonisation. If all in the same water body, assign 1a. For Ashbourne Golf Course apply 1a to water body containing record, and do not apply a risk class to the downstream water body . Other RBDs: as per general approach for all records.
4	***Hydrocotyle ranunculoides***	1a	1b (downstream water body immediately adjacent to water body with a confirmed record.)	All RBDs: Is not currently recorded in the RBDs in the Republic of Ireland.
5	***Elodea nuttallii***	1a	1b (downstream water body immediately adjacent to water body with a confirmed record -to include first TWBs.)	-
6	***Sargassum muticum***	1a	1b (coastal water bodies (not TWBs) immediately adjacent to water body with a confirmed record.)	-
7	***Dreissena polymorpha***	1a	1b (the entire system or subcatchment within which the record of the species is located, to include first TWB.)	ShRBD: ensure the following systems are all included: Mulkear, river through Bunratty, Entire Shannon river system. Other RBDs: as per general approach for all records.
8	***Leuciscus leuciscus***	1a	1b (the entire system or subcatchment within which the record is located-excluding TWB)	ShRBD: Doon Lake: assign 1a to the lake and 1b to the whole system, excluding TWB. Camogue River: 1a to entire system, excluding the TWB. Maigue River: 1a to entire system, excluding the TWB. Mulkear River: 1a to system u/s as far as Newport.1b to rest of system excluding TWB. Shannon main channel & system: not recorded/confirmed here. Just as per GIS. SERBD: Barrow:1a from 5km N of Athy as far as Saint Mullins & TWB to New Ross bridge. 1b to rest of system. SWRBD: Blackwater: 1a to entire catchment. 1b to the TWB. Other Records & RBDs: as per general approach for all records.

Artificial water Bodies: Canals

Canals are artificial water bodies and were not subjected to the Risk Assessment exercise. To maintain a consistency of approach, it was proposed that risk class should not be assigned to river water bodies units based on alien species records in an artificial water body contained within their boundaries.

Canals are subject to the establishment of maximum ecological potential and setting good ecological potential (GEP) as the environmental quality objective under the process dealing with Heavily Modified and Artificial Water Bodies. Their role as conduits for the spread of alien species was acknowledged and shall receive further specific consideration in the development of the programme of measures.

Incorporating Alien Species into Risk Class

It is considered that, for water bodies containing many of the species on the focus list, good ecological status with derogation may still be achieved. It is, therefore, proposed that where an alien species risk class is identified by the above methodology for a water body, it should not change the overall outcome for that water body from the other risk assessments.

During the preparation of the programme of measures, component results for water bodies will be examined and at that stage, the appropriate targeted steps taken to, as far as possible, prevent spread, eliminate or manage alien species in water bodies.

5. Conclusion

Risk assessment is an iterative process. Information on the distribution and impacts of alien species on specific sites is limited. Where distribution information is not currently available it will require collection and analysis before risk can be assessed with confidence. Further work will be required in the longer term to establish, more accurately, the range of each species and assess actual alien species pressures on water bodies and to design the most appropriate programmes of measures

6. References

EPA (Environmental Protection Agency) 2004. *Alien Species Risk Analysis (Republic of Ireland): Guidance for the Assessment of Pressures and Impacts in accordance with Article 5 of the Water Framework Directive (WFD)*. Environmental Protection Agency, Kilkenny. (Available at: www.lgp,ie/wfd in Documents/WFD Technical Documents)

UK TAG (United Kingdom Technical Advisory Group) 2004. *Guidance on the Assessment of Alien Species Pressures.* United Kingdom Technical Advisory Group on the Water Framework Directive.