ABSTRACT

Lagarosiphon major: A Major Environmental Threat to Lough Corrib

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Lough Corrib is the second largest lake in Ireland. It is of major conservation importance and supports 14 habitats and six species that are listed on Annex I and Annex II, respectively, of the Habitats Directive. The lake is a nationally important angling resource and a major tourist angling destination. The recent arrival of the highly invasive submerged plant species, *Lagarosiphon major*, in the lake has the potential to compromise the environmental, social and economic value of this unique natural resource.

Lagarosiphon major is native to southern Africa and was introduced to Ireland by the horticulture industry as an oxygenating plant for use in artificial watercourses. The weed spreads rapidly by fragmentation, with small plant fragments being capable of establishing new populations in suitable habitats. It was first recorded in a natural aquatic habitat in Ireland in 2005 when its presence was confirmed in upper Lough Corrib. By this time, the plant had established a surface vegetation canopy that covered 12 ha of water in that bay. In 2005 *Lagarosiphon* was recorded in 9 bays, principally in the upper lake. By 2007 the weed had expanded its range and was present in 64 bays. By the end of 2008 this invasive species was recorded from 113 bays and littoral areas and was progressively moving southward towards the shallower lower lake, where *Lagarosiphon* has not yet been recorded.

Between 2005 and 2008 studies have been undertaken to investigate the life cycle of *Lagarosiphon* under Irish conditions, to quantify the impact its spread is having on indigenous biotic communities and to develop methods to control the spread and possibly eradicate this aggressive species. This work has revealed that, in areas where *Lagarosiphon* has become established, it competitively excludes most indigenous plant species. In these habitats, macroinvertebrate abundances are significantly greater than in the native Charophyte vegetation. Furthermore, the habitat created by this tall invasive plant favours coarse fishes, and particularly small perch and roach, over salmonid species, for which the lake is internationally renowned.

Work to control *Lagarosiphon* in Lough Corrib has focused primarily on mechanical cutting. In 2008 some 4,700 tonnes of weed was removed, using this method, from the upper lake. Other methods to control the weed in the lake are being tested and scientifically evaluated. These include hand removal by divers at recently colonised sites, localised herbicide treatment and light exclusion using biodegradable geotextile. The possible use of biocontrol agents is also being considered. Detailed field and laboratory based studies are ongoing in an effort to find a weak link in the plant's life cycle that may be specifically targeted for control. Results from these varied approaches will be presented and the course of future research programmes will be outlined.