

CAISIE

After Life Communication Plan



Control of Aquatic Invasive Species and Restoration of Natural
Communities in Ireland

LIFE 07 NAT IRL 000341



An Roinn
Ealaíon, Oidhreacht agus Gaeltachta
Department of
Arts, Heritage and the Gaeltacht



Iascach Intíre Éireann
Inland Fisheries Ireland





Curly-leaved waterweed infestation in Lough Corrib

1 Scope

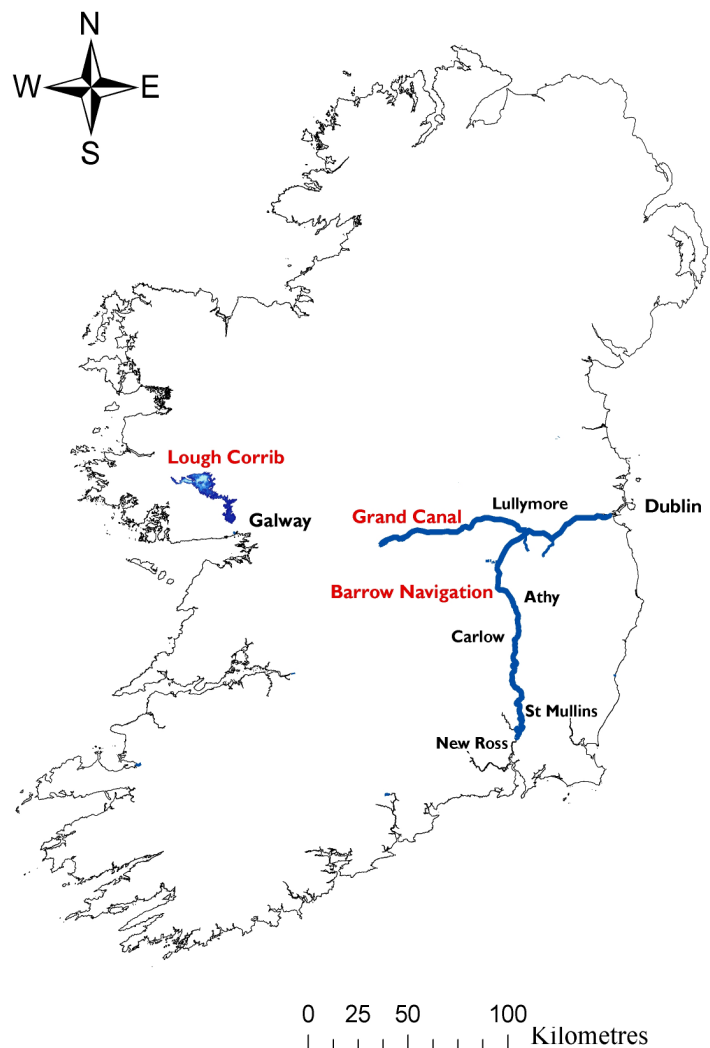
The After LIFE+ Communication Plan sets out how the results of the CAISIE Project will continue to be disseminated and communicated after the end of the LIFE+ funding and indicates what external supports will be used to achieve this. The CAISIE Project was funded with the contribution of the LIFE+ financial instrument of the European Community, with co-financing from the National Parks and Wildlife Service (NPWS). The project was coordinated and administered by Inland Fisheries Ireland (IFI).

2 About the CAISIE Project

The aim of the EU LIFE+ Nature and Biodiversity project 'Control of Aquatic Invasive Species and Restoration of Natural Communities in Ireland' (CAISIE), was to 'contribute to the halting of biodiversity loss in Ireland by preventing further impacts on native biodiversity from high impact aquatic invasive species (AIS) through the development and demonstration of effective control methods, a programme of stakeholder engagement and awareness raising, and policy development and dissemination'. The project commenced in January 2009 and focused on two main geographical areas: (1) Lough Corrib and (2) the Grand Canal and Barrow Navigation. The project concluded in January 2013.

Some of the most damaging invasives species in Ireland are aquatic plants, fish species and invertebrates. In many cases the plant fills an empty niche and then expands rapidly and competes for additional niches. Oftentimes the

1



native species are excluded and the ecology of the waterway can be changed dramatically. This can lead to waterways becoming completely choked by a single species, with adverse consequences for navigation, angling and other water-based recreational use.

The CAISIE Project was developed in response to the increasing threat from AIS in Ireland's inland waterways. This particularly reflected the threat posed by the Curly-leaved waterweed in Lough Corrib and the recognition of the Grand Canal and Barrow Navigation as a significant pathway for the spread of invasive species throughout Ireland. Invasive aquatic plants in the Grand Canal and Barrow Navigation have a negative impact on the recreation resource this waterway provides. Many species grow at alarming rates necessitating the use of specialised weed cutting boats and other measures to remove or control them. Ireland's newest AIS is the Asian clam (*Corbicula fluminea*). It is considered one of the most notorious and widespread AIS in the world. The Asian clam can produce very large densities that are capable of blocking water abstraction pipes, clogging fish spawning grounds and seriously reducing the planktonic food required for fish and invertebrates. It was discovered in Ireland in April 2010 in the lower River Barrow. Subsequent studies by the CAISIE team confirmed that it was present in an 18 km stretch from New Ross to St. Mullin's, obtaining maximum densities of almost 18,000 clams per m².

3 Basis and outline of After LIFE+ Communication Plan

Deliverables and outputs from The CAISIE Project will continue to inform the management and control of AIS throughout Ireland and further afield. During its 49 month duration, it has been the lead instrument in developing a range of initiatives to deal with the threat from AIS in Irish waterways. The project has developed a suite of successful control methods to target a range of AIS. CAISIE has:

- increased the understanding of the impacts of AIS on native biodiversity,
- enhanced the awareness of AIS in Ireland,
- identified the mechanisms of their introduction and spread, and
- successfully promoted AIS biosecurity among stakeholders.

In order to build upon these successes and ensure the output from the project continues to be disseminated and communicated after its completion, the following actions have been identified in this After LIFE+ Communication Plan:



Inspect



Remove



Clean



Dispose



Notify



- Continue to disseminate effective, tried-and-tested AIS control methods, many of which were developed during the project.
- Communicate widely the scientific findings of the project, through peer reviewed scientific and technical publications.
- Maintain AIS awareness in Ireland through the continued dissemination of CAISIE-produced AIS literature and associated materials.
- Disseminate guidelines on effective stakeholder engagement programmes based on the experiences of the CAISIE Project.
- Disseminate to a large target audience the progress and significant outcomes of the project through the 25 minute long CAISIE Project DVD.
- Maintain communication with primary schools throughout Ireland *via* Inland Fisheries Irelands 'The Something Fishy Programme'. This is a curriculum item for Irish schools and contains an dedicated chapter on Invasive Species.
- Continue to promote the implementation of AIS biosecurity among stakeholders.
- Host an international conference on AIS policy and strategy.
- Disseminate the Layman's Report (2,000 copies) to the widest possible stakeholder audiences.
- Maintain on-line resources (i.e. project website and social media tools).

Inland Fisheries Ireland will be the lead organisation to coordinate and implement these actions. The project has fostered the development of a broad network of national and international stakeholders and interested parties that will be called upon to assist with this, as necessary.



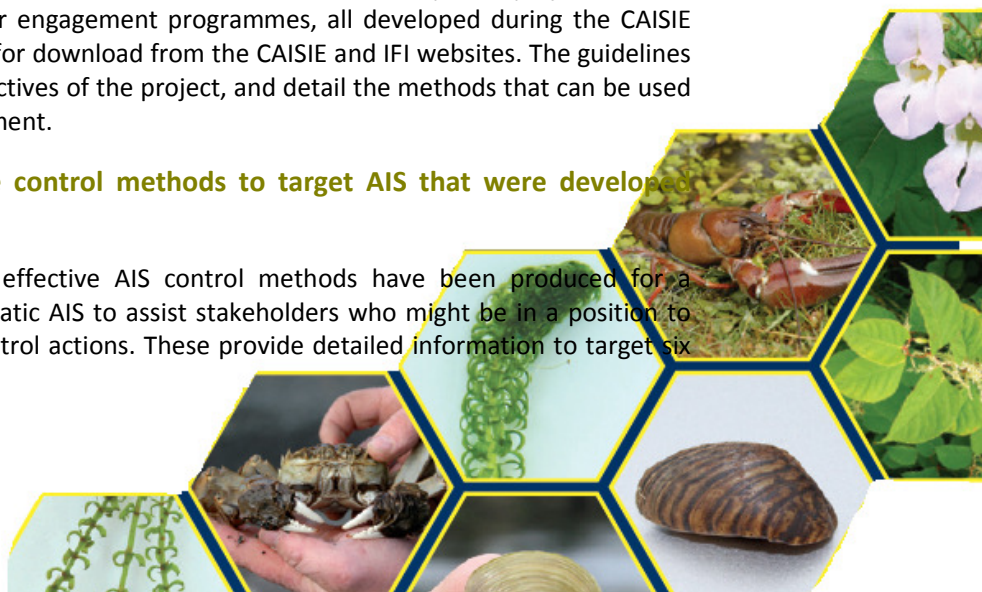
4 Actions of the After LIFE+ Communication Plan

Dissemination of guidelines on effective stakeholder engagement programmes

A set of guidelines on effective stakeholder engagement programmes has been produced by the CAISIE team. These guidelines will inform future invasive species projects on the best practices for stakeholder engagement programmes, all developed during the CAISIE project, and will be available for download from the CAISIE and IFI websites. The guidelines set out the aims and the objectives of the project, and detail the methods that can be used to achieve successful engagement.

Dissemination of effective control methods to target AIS that were developed during the project

'Best practice' guidance on effective AIS control methods have been produced for a number of the most problematic AIS to assist stakeholders who might be in a position to partake in some practical control actions. These provide detailed information to target six



high impact AIS, based on the control measures employed and developed during the CAISIE Project (Box 1). Stakeholders are able to download these documents from the CAISIE and IFI websites.

Two peer reviewed scientific papers have been published on the management and control of Curly-leaved waterweed in Lough Corrib. Both are accessible on-line (Box 2). 'Balsam Bashes', which promote the control of Himalayan balsam by local community groups and others, will continue to be supported by IFI as part of Fisheries Awareness Week (FAW). Information on these initiatives will be available on the FAW (www.faw.ie) and IFI (www.fisheriesireland.ie) websites.

Box 1 'Best practice' guidelines on effective AIS control measures.

- Best practice for the control of Curly-leaved waterweed *Lagarosiphon major*
- Best practice for the control of Giant hogweed *Heracleum mantegazzianum*
- Best practice for the control of Japanese knotweed *Fallopia japonica*
- Best practice for the control of Himalayan balsam *Impatiens glandulifera*
- Best practice for the control of New Zealand pigmyweed *Crassula helmsii*
- Best practice for the control of Nuttall's pondweed *Elodea nuttallii*

Communication of the scientific results emerging from the project

The Final Report will provide a comprehensive record of the scientific results of the project. The annexes will contain all of the scientific documentation and reports produced during the project. The Final Report will be available for download on the CAISIE and IFI websites. Four scientific papers were published based directly on the work undertaken by the CAISIE team (Box 2) and these are available on-line. Two of the papers are specific to the management and control of Curly-leaved waterweed in Lough Corrib. Another details the status of the Asian clam in Ireland and the fourth explores the potential for biological control as a means to treat AIS in Ireland. The latter was conducted under CAISIE Project Action C4 (Evaluate Biological Control of AIS in Ireland) and is part of a PhD thesis with University College Dublin (UCD) where two additional papers have been submitted for publication (Box 3). The CAISIE project has also supported two undergraduate studies in an Irish based third level institute, which resulted in two final year theses (Box 4). These are available on request from the Galway-Mayo Institute of Technology (GMIT).



Killer shrimp, not yet present in Ireland.



Asian Clam, River Barrow



Box 2 Published scientific papers from the CAISIE Project

- Caffrey, J.M., Millane, M., Evers, S. and Moran, H. (2011). Management of *Lagarosiphon major* (Ridley) moss in Lough Corrib. *Biology and Environment*. 111B (3) 1-8.
<http://tinyurl.com/anw6fm7>
- Caffrey, J.M., Millane, M., Evers, S., Moran, H. and Butler, M. (2010). A novel approach to aquatic weed control and habitat restoration using biodegradable jute matting. *Aquatic Invasions* 5:123–129.
http://www.aquaticinvasions.net/2010/AI_2010_5_2_Caffrey_etal.pdf
- Caffrey, J.M., Evers, S., Millane, M. and Moran, H. (2011). Current status of Ireland's newest invasive species – the Asian clam *Corbicula fluminea* (Müller.) *Aquatic Invasions* 6: 391-399.
http://www.aquaticinvasions.net/2011/AI_2011_6_3_Caffrey_etal.pdf
- Baars 2011. Classical biological control for the management of alien invasive species in Ireland. *Biology and Environment* 111B: 1- 10.
<https://www.ria.ie/getmedia/ffa70557-6dce-4b2f-9853-76ee2e3735dc/BIOE-2011.17.pdf.aspx>

The scientific results derived from the CAISIE Project will form part of future presentations, where relevant, and this information will continue to be disseminated through conferences, seminars and meetings conducted by the IFI Invasive Species Section.

Box 3 Scientific papers submitted for publication in international journals.

- Deeming, J.C. A new species of *Hydrellia* Rob.-Desv. (Diptera: Ephydriidae) developing in *Lagarosiphon major* (Hydrocharitaceae) in South Africa. Submitted to *African Entomology*.
- Mangan, R. and Baars, J-R. Use of life table statistics and degree day values to predict the invasion success of *Hydrellia lagarosiphon* Deeming (Diptera: Ephydriidae), a leaf mining fly of *Lagarosiphon major* (Ridley) Moss (Hydrocharitaceae), in Ireland and Europe. Submitted to *Biological Control*.

Box 4 Theses supported by the CAISIE Project.

- Elaine Keenan (*UCD in prep*) The effect of an aquatic invasive weed *Lagarosiphon major* and it's management on the flora and fauna of shallow littoral habitats in Lough Corrib, Ireland. PhD Thesis
- Rosie Mangan (2012). Pre-release evaluation studies of the leaf-mining fly, *Hydrellia lagarosiphon* (Diptera: Ephydriidae) a candidate biological control agent of the submerged aquatic invasive weed *Lagarosiphon major* (Hydrocharitaceae). PhD Thesis
- Brazier, B. (2010). A comparison of fish conditions and diets between native macrophyte and *Lagarosiphon*-dominated habitats in Lough Corrib. Galway-Mayo Institute of Technology (GMIT), Unpublished 4th year thesis.
- Bulfin, J. (2012). GMIT, Responses of macroinvertebrates and Rudd (*Scardinius erythrophthalmus*) to the invasive macrophytes (*Elodea nuttallii* and *Crassula helmsii*) and their management in Irish canals. Unpublished 4th year thesis.



Maintain AIS awareness in Ireland through the continued dissemination of CAISIE produced AIS literature and associated materials

The extensive range of AIS literature and associated materials produced during the CAISIE Project (Box 5) will continue to be disseminated by IFI and, where appropriate, will be available for download on the CAISIE and IFI websites.

Identification cards have been distributed nationwide to all IFI staff. They will continue to be circulated to relevant stakeholders such as anglers, boaters, sister agencies and other research and field-based operatives. Aquatic invasive species information boards for water users have been installed and will remain in place at major access points to Lough Corrib (n= 13) and the Grand Canal / Barrow Navigation (n= 20). CAISIE literature will be available at future stakeholder events attended by IFI such as angling fairs, angling competitions and other such events. The smartphone App ("Invasive Species") will continue to be available for free download and will be updated by IFI as necessary. Reports of new occurrences of AIS received through this App will be validated and acted upon by IFI. The IFI 'Something Fishy' programme, which runs nationally as a curriculum item in Irish primary schools, added an AIS module which was developed in association with the CAISIE Project. This will continue to be a feature of the programme. A permanent display developed by the CAISIE Project to increase general awareness of AIS among the public has been installed and will remain in place in the National Atlantaquarium in Galway City.

A 25 minute long video showcasing the works carried out by the CAISIE project is available via the CAISIE website.



Box 5 AIS literature and associated materials produced during the CAISIE Project

- AIS Identification cards
- AIS 'Stop the Spread' badges
- AIS awareness rulers
- AIS identification literature (leaflet and poster)*
- AIS Alerts
- AIS information boards at slipways
- AIS smartphone App*
- Biosecurity Guidelines for Anglers (leaflet and poster)*
- Biosecurity Guidelines for Boaters (leaflet and poster)*
- Biosecurity Guidelines for Scuba Divers*
- CAISIE branded biros
- CAISIE 'Most Unwanted' T-shirts
- CAISIE display at the National Atlantaquarium
- CAISIE Video*

*Available on-line

Continue to promote the implementation of AIS biosecurity among stakeholders.

The CAISIE project has been integral to the development of AIS biosecurity initiatives in Ireland and promoting this issue to a wide range of stakeholders (Box 6).



Inland Fisheries Ireland will continue to engage with stakeholders including national angling, boating and diving federations, local clubs, as well as with State agencies and the agricultural and horticultural sectors.



The mandatory disinfection of equipment at angling competitions (e.g. as implemented during the World Pairs Coarse Angling Championship and the Trout Angling World Cup in 2012) will be further encouraged by IFI in association with the angling community. Biosecurity literature developed under the CAISIE Project will continue to be disseminated by IFI to stakeholders, as described in the previous section.



Box 6 Principal stakeholder groups targeted to promote AIS biosecurity

- Anglers
- Boaters
- Water sports enthusiasts (diving and paddle sports)
- Walkers
- Inland Fisheries Ireland staff
- Other public bodies (e.g. state agencies and local councils)
- Field workers and researchers
- Agricultural sector
- Horticultural sector
- Landowners



Host an international conference for stakeholders on AIS policy.

The Freshwater Invasives – Networking for Strategy (FINS) conference was co-sponsored by IFI, the European Inland Fisheries and Aquaculture Advisory Commission and the CAISIE Project. An international conference is a CAISIE project deliverable and is supported by LIFE+ funding. The FINS conference was held in Galway, Ireland, and was attended by more than 160 delegates from 19 countries. Twelve invited invasive species experts from around the globe addressed the conference. FINS addressed key topics relating to freshwater invasive species and harmful aquatic pathogens. The primary objective of the conference was to provide a forum where international scientists, policy makers and stakeholders could address designated themes with a view to informing management and policy development in this increasingly important area. The themes that provided the focus for deliberations during the conference were:

- Policy
- Biosecurity
- Management & Risk Assessment
- Economics

The FINS conference provided an ideal platform to disseminate and communicate the results of the CAISIE project and share the expertise gained to a national and international audience. It included a conference field trip to view first-hand the CAISIE Project work on controlling Curly-leaved waterweed and rehabilitating native habitat in Lough Corrib. The conference was hosted in Galway city in April 2013.

Further to this, the CAISIE Project Leader, Dr Joe Caffrey, will address two sessions at the 18th International Conference on Aquatic Invasive Species in Canada in April 2013. These presentations will focus on the management of AIS in Ireland and will draw on experiences gained during the CAISIE Project.



Layman's Report

The Layman's Report gives a non-scientific synopsis of the CAISIE Project. As such, it is an effective means of communicating the results and output from the project to the general public. The report will be disseminated to project partners and stakeholders, and it will be available for download on the CAISIE and IFI websites.



Maintain on-line resources

The CAISIE Project website and social media tools (i.e. Facebook and Twitter) that were developed for and used during the project will continue to act as important on-line resources to host, communicate and disseminate the results of the project (Box 7). The project website (www.caisie.ie) will be maintained by IFI for a minimum period of five years after project completion and, when this period has elapsed, it will be subsumed into the IFI website. The CAISIE website hosts a wide range of information on AIS in the project areas, provides regular updates on the work undertaken during the project and represents an important resource from which to download reports, AIS awareness and biosecurity literature. The IFI website also hosts a dedicated AIS section (Box 7) which is regularly updated and has an interactive GIS map to display the distribution of the various AIS present in Ireland. The finalised output from the CAISIE Project will also feature on the invasive species section of the IFI website. Social media will continue to host and disseminate the results of the project and IFI intend to maintain the Facebook and Twitter after the project ends (Box 7).

Box 7 Website and social media resources

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|--|---|
| • CAISIE Project website | www.caisie.ie |
| • CAISIE Project Twitter | www.twitter.com/aisireland |
| • CAISIE Project Facebook | http://www.facebook.com/pages/Aquatic-Invasive-Species-Ireland/118394508216740 |
| • IFI AIS map viewer | http://www.ifigis.ie/InvasiveSpeciesMap |
| • IFI website (invasive species section) | http://www.fisheriesireland.ie/Invasive-Species/invasive-species.html |

Acknowledgements

The CAISIE Project was funded with the contribution of the LIFE+ financial instrument of the European Community, with co-financing from the National Parks and Wildlife Service and was coordinated by Inland Fisheries Ireland. The following organisations also supported this project: Carlow County Council, Galway City Council, Galway County Council, Heritage Council, Office of Public Works, Waterways Ireland, MERC Consultants, Moore Marine & The Project Advisory Group.

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