Recreational Boating Pathway Action Plan

Sustainability *at the heart of a living, working, active landscape valued by everyone.*

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www.daera-ni.gov.uk

An Agency within the Department of Agriculture, Environment and Rural Affairs
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Contents

For purposes of the EU Regulation (1143/2014)[1], we will use the term invasive alien species (IAS) but in some cases they may also be referred to as Invasive Non-Native Species (INNS).

An **invasive alien species (IAS)** is a plant, animal or other living organism that may be, either accidentally or intentionally introduced by man, and which can have a negative ecological or economic impact in an area where it does not naturally occur.

This plan was prepared by the Northern Ireland Environment Agency (NIEA), an agency of the Department of Agriculture Environment and Rural Affairs (DAERA), in conjunction with relevant stakeholders (see Annex 1 for list of Working Group Members – to be confirmed). NIEA, along with other divisions of DAERA and the working group, will monitor the implementation of the listed actions. The Working Group membership will be confirmed within 6 months of the final publication of this PAP.

Background to action planning

Reducing the risk posed by pathways of introduction and spread is a key way of tackling IAS. The Invasive Alien Species Strategy for Northern Ireland[2] calls for the development of Pathway Action Plans (PAP) and they are a requirement of the EU IAS Regulation[1]. They can also form an element of the programme of measures under the Marine Strategy Framework Directive[3] and the Environment Strategy for Northern Ireland[4] (currently in draft).

This Pathway Action Plan is one of a series of plans intended to address pathways of introduction or spread of non-native species into Northern Ireland. The EU regulation defines pathways as 'the routes and mechanisms of the introduction and spread of IAS'[1]. Pathways can apply to the geographic route by which a species moves outside its natural range, the corridor of introduction, for example a road or canal, or the human activity, in this instance recreational boating, that leads to its accidental or deliberate introduction[5]. Many IAS are introduced unintentionally. The most effective way to manage these unintentional introductions is through the management of the introduction pathway itself rather than measures targeted at individual species. This plan outlines the general policy and approaches as well as deliverables by government and other actors in relation to management of the recreational boating pathway.

Scope

This PAP is aimed at the recreational boating pathway. Recreational boating is broadly defined as the use of boats designed or adapted for sport or leisure, whether by sail, paddle and/or power. This includes, but is not limited to, dinghies, yachts, canal boats, personal watercraft (commonly known as "jet skis") and craft used for paddle sports, as well as the trailers and equipment used by such. This PAP does not cover commercial vessels and their ballast. Reference to 'boats' or 'boating' herein is therefore intended to refer to a wide range of craft, in line with this definition. The geographical scope of the PAP is Northern Ireland but will also refer,

where relevant, to Ireland from a biogeographical perspective and further afield (particularly Continental Europe).

This PAP takes a necessary risk-based approach to prioritising actions and focuses on key activities and sectors within recreational boating for which biosecurity is particularly important.

Rationale

There are currently about 100 invasive non-native freshwater and marine species established in NI. In recent decades, the rate of arrival IAS has accelerated, with many species coming from the Ponto-Caspian region. For example, the zebra mussel *(Dreissena polymorpha)*, which is now established in Lough Erne and Lough Neagh and the quagga mussel *(Dreissena bugensis)*, which has established populations in Ireland, in the Shannon system, providing a direct route for spread into NI. Other more recent freshwater arrivals in NI have been the Asian clam (Corbicula fluminea) and bloody red shrimp *(Hemimysis anomala)*. Invasive pathogens are also an issue, such as crayfish plague *(Aphanomyces astaci)*, which has been introduced into catchments across Ireland, including the Erne.

There are many more invasive species with the potential to arrive and establish in N.I. This includes aquatic plants that can clog freshwater lakes and navigations, marine species that can foul boats and propellers and aquatic invertebrates that can completely alter natural ecosystems. This PAP allows us the opportunity to prevent their introduction into NI.

As well as impacting our native biodiversity, IAS also negatively impact our economy, costing NI an estimated £46.5 million annually.[6]

The route by which IAS potentially arrive on recreational boats is also not known with certainty. In recent years, an extensive navigation network from Ireland to Northern Ireland for cruisers and other pleasure craft has been created, mainly via the Shannon Erne Waterway and the continued development of the Ulster Canal. Facilities for operators of small craft, including angling boats, powerboats, jet skis, sailing craft, kayaks, rowing boats and canoes, are also readily available in a wide range of aquatic habitat settings throughout NI.

Vessels may also sail directly from freshwater locations in continental Europe to freshwaters in NI and Ireland; however, it is thought that this is a small risk given relatively few vessels make this journey and the period in salt-water will reduce the risk of organisms remaining attached. In terms of marine species, the main risk is thought to be vessels sailed directly to NI and Ireland from continental Europe or GB with fouling attached. However, marine vessels imported overland and put into the water could also be a risk.

Although there are uncertainties about introduction pathways, the proven potential for negative impacts from IAS means that a precautionary approach is required.

Good biosecurity is critical to reduce the risk of introduction and spread of aquatic invasive non-native species. In 2011, the GB government introduced the Check Clean Dry (CCD) public awareness campaign aimed at improving biosecurity amongst water users. NI, along with all other British Irish Council (BIC) jurisdictions (GB, Ireland, Isle of Man, Jersey and Guernsey) have fully adopted CCD and the campaign resources that are promoted via the Invasive Species Northern Ireland website and multiple leafletting campaigns (Annex 8).

There is a European Code of Conduct on Recreational Boating and IAS[7] that was developed under the Bern Convention. A number of relevant acts in domestic legislation also cover this area. The recommendations outlined in this plan support the EU Invasive Alien Species Regulation (1143/2014)[1] which, along with Species of Union Concern, provide a general prohibition on the release of any non - native species of animal or plant into the Northern Ireland environment. Northern Ireland is bound to EU Regulation (1143/2014)[1] in respect of Invasive Alien Species (IAS) by virtue of the Northern Ireland Protocol. It is enforced via the corresponding Invasive Alien Species (Enforcement and Permitting) Order (Northern Ireland) 2019.[8]

Other relevant NI Acts/Orders/Policy Instruments;

The Wildlife (Northern Ireland) Order (1985) (as amended)[9]

Wildlife and Natural Environment (WANE) Act 2011[10]

Water Framework Directive 2000[11]

Marine Strategy Framework Directive 2008[3]

Environment Strategy for Northern Ireland 2022[4]

However, legislation alone is not sufficient to manage and lower the risk associated with introducing or spreading IAS. It requires cooperation and collaboration from all concerned, each sector is part of the solution and plays an important role in IAS management and implementing best biosecurity practice. This plan sets out additional actions to help minimise the risk of introduction and movement of IAS caused by recreational boaters.

NIEA has adapted the GBNNSS adaptation of the Bern Convention code of conduct and tailored it to the needs of NI (Annex 2). It has also developed and agreed with agencies in GB, biosecurity guidance for boat users (Annex 3). Its primary output, however, has been to agree a series of measures to raise awareness among key actors in this sector and to strengthen existing biosecurity mechanisms. These actions are outlined below, and they form the main body of the action plan.

Aims and Objectives

The overall aim of the PAP is to reduce the risk of introduction and spread of IAS by recreational boat users based on international good practice.

Specific objectives are to:

- Raise awareness of CCD protocols and facilitate their adoption by all recreational boaters, particularly at priority sites and events, where organisers must make it a condition of participation.
- Officially request event organisers and clubs to adopt CCD protocols and insert into club/organisation Terms of Reference (TORs).
- Officially request landowners and facilities managers (e.g. marina operators, clubhouses, etc.) to raise awareness of biosecurity among their users and put in place systems to facilitate good biosecurity.
- Consolidate biosecurity guidance for recreational boating and facilitate the production of clear, practical guidance where necessary.
- Identify gaps in evidence, assess risks, identify biosecurity measures, and recommend ways to overcome these.

Prioritising Actions

Recreational boating includes a broad range of different vessels (from small kayaks to large yachts) and a diverse range of activities (from individuals paddling on their local water body to large and well organised international team / club events).

While all recreational boaters should be aware of and implement good biosecurity, some activities are more likely to pose a biosecurity risk than others are. For example, boats used abroad and brought back to NI are more likely to pose a risk of new introductions than those used exclusively within NI, and boats moved regularly between NI and Ireland water bodies are more likely to spread IAS than those used on a single body of water.

The development of this PAP included work to identify the highest risks, along with boating activity areas that need key focus initially, or those that need more work to raise awareness and find biosecurity solutions. This PAP provides broad biosecurity guidance and actions relevant to all recreational boaters, but also focuses (initially) on activities considered a priority.

These are:

- Any recreational boat entering NI waters directly from Ireland e.g. Shannon Erne Waterway, from GB (on trailers), abroad or via road trailer from Ireland
- Freshwater boats (particularly dinghies, windsurfers, personal watercraft, canoes and kayaks) moving between water bodies, particularly those moving between otherwise unconnected catchments.
- Boats that use canals and other inland waterways, particularly those being taken out and moving long distances between otherwise unconnected parts of the canal network or moving from high risk sites.
- Marine vessels, particularly those moving long distances or being taken out of/put into the water for example skiffies.

NIEA acknowledge that adopting biosecurity good practice may be more straight forward for some sectors, but difficult for others. In particular, CCD procedures can be difficult to apply to large vessels that are generally kept in the water (e.g. canal boats and large marine yachts).

For this reason, this PAP is focussed on practical actions that can be taken to reduce the most significant risks.

Key Actors

- Northern Ireland Government DAERA Marine/Inland Fisheries/NIEA/Forest Service (manage access / water bodies)
- Waterways Ireland
- Loughs Agency
- Lough Neagh Partnership
- NI Local authorities (who manage recreational boating lakes / rivers)
- Port and Harbour Authorities/Commissions (e.g. Belfast Harbour)
- Belfast Maritime & Coastguard Agency
- Irish Coastguard
- Royal Yachting Association Northern Ireland
- Powerboat Association of Ireland
- Canoe Association of NI (CANI)

- CanoeNI
- OutdoorNI
- Tourism NI
- Sport NI
- Northern Ireland Marine Task Force
- Marine Conservation NI
- Angling Federations (fishing from boats)
- Rowing Ireland/Rowing Ulster
- NI Water and other asset owners
- Diving Clubs
- River Trusts
- Boating competition organisers
- Boating holiday organisers
- Marinas (Ireland, GB, etc.)
- Sailing / canoeing / kayaking / rowing clubs
- Boating equipment retailers
- Water based activity/adventure outdoor pursuits companies

Draft actions for discussion

Key general actions are outlined below. A timetable for these actions, as required by EU Regulation (1143/2014)[1] is included in Annex 9.

Biosecurity at the border and international cooperation.

Action 1 (freshwater)

Run a border biosecurity campaign concentrating on the high-risk points of entry to Northern Ireland. This will mainly focus on ferries from England, Wales, and Scotland and those coming directly into Ireland from the European continent & thereby seek cooperation with inspectors at Ireland ports to protect direct access to NI waters.

Action 2 (freshwater)

Liaise with Welsh and Scottish Governments who will run a CCD campaign at Welsh ports connecting to the Irish Republic and on ferries between Scotland and Ireland.

Action 3 (freshwater)

DAERA, as members of BIC INNS Group, will work with other member jurisdictions to establish and run a BIC Aquatic Biosecurity group to agree co- ordinated measures, including action at ports, Eurotunnel and on ferries.

Measures to include;

- Adding a CCD declaration to passenger entry forms.
- Alongside CCD declaration, a declaration of the previous location the boat and associated equipment was used (this will alert border control to high-risk incidences and allow them to be more selective in their inspections i.e., if boat came from Ponto-Caspian region).
- Passengers should also declare their intended destination.
- Inspection of boats and associated equipment such as trailers and towing vehicles.
- Failure to comply will result in the quarantine or cleaning of boats and associated equipment and may result in penalties.

Action 3A (freshwater)

DAERA will work with Ireland government to introduce an all-island alert-system, whereby Ireland will be notified on any passengers arriving in NI whose final destination is an Ireland waterbody and vice versa.

Action 4 (freshwater and marine)

DAERA will liaise with government in Ireland which will be working with member states to agree a programme of action related to aquatic biosecurity (see Annex 7 for those priority species whose arrival we aim to prevent entering NI). NI will also continue to liaise with GBNNSS and BIC colleagues to produce further biosecurity protocols.

These will be targeted at:

- Continental boaters coming to NI and Ireland in the same visit
- NI boaters returning from the continent

- Marine vessels sailing to NI and Ireland
- Local boaters moving between waterways in NI and Ireland

Action 5 (freshwater and marine)

The Royal Yachting Association NI, CANI, Canoeing, Irish/Ulster Rowing and British Marine (and other relevant stakeholders) will promote the NI Code of Conduct on Recreational Boating and Invasive Alien Species (Annex 2), the CDD campaign and other relevant documents (Rapid Assessment for Marinas and Strangford lough document to be supplied by Rose)

Action 6 (freshwater and marine)

DAERA will carry out a survey, utilising key actors and relevant stakeholders, to understand the number of individuals using our waterways in Northern Ireland.

Event biosecurity

Action 7 (freshwater and marine)

DAERA Marine/NIEA will work with organisations such as Royal Yachting Association NI, CANI, CanoeNI, Irish/Ulster Rowing and British Marine (and other relevant stakeholders) to annually compile a prioritised list of events / competitions to be targeted for heightened awareness-raising such as biosecurity demonstrations etc. Separate lists will be developed for freshwater and marine activities and agreed by the working group.

Action 7A (freshwater and marine)

Relevant organisers/owners will implement heightened awareness-raising activities at the prioritised sites/events, including display of posters/signs/guidance (Annex 8).

Club and boat user biosecurity

Action 8 (freshwater and marine)

The Royal Yachting Association NI, CANI, CanoeNI, Ireland/Ulster Rowing, British Marine, River Trusts (and other relevant stakeholders) to disseminate awareness raising materials, aiming to have posters in all clubhouses and training centres and frequent messages in magazines, mail outs, social media and other communications material (Annex 8).

Action 9 (freshwater and marine)

All the aforementioned overarching bodies will request all clubs to add the biosecurity clause (Annex 4) to their constitutions, award systems and ideally any other contractual agreements (e.g. agreements to use / keep boats). This may be direct, or by including biosecurity in model constitutions provided to clubs.

Action 10 (freshwater and marine)

DAERA Marine/NIEA will assist RYANI, marina operators, CANI, CanoeNI, River Trusts etc. to implement training programmes for basic boat usage and marina operators, linked in with their renewal applications. In addition, biosecurity will be included in relevant inductions (e.g. for marina staff) and at other key points (such as inductions for those hiring boats).

Action 11 (freshwater and marine)

The Boating PAP working group (working with the aforementioned overarching bodies) will identify companies that transport recreational boats and aim to raise their awareness that boats need to be clean before transportation.

Action 12 (freshwater and marine)

NIEA INNS Team, alongside key actors, will run a campaign aimed at encouraging recreational boaters to record all IAS sightings on CEDaR, iRecord or iNaturalist and to ensure all actors report all sightings. DAERA will assess the effectiveness of this campaign through the analysis of engagement and reporting via CEDaR.

Site biosecurity

Action 13 (freshwater and marine)

NI Water, River Trusts, NIEA, Crown Estates Northern Ireland, RSPB, Wildlife Trusts, Councils, etc. will put a reference to carrying out biosecurity (e.g. Annex 3) into all lease and management agreements related to boating (as they come up for renewal).

Action 14 (freshwater and marine)

DAERA will request all marinas (marine and freshwater) to add a biosecurity clause to their berthing agreements. DAERA will also ask marinas not to allow heavily fouled boats (i.e. more than a slime layer) to be launched at their marinas. If already in the water and heavily fouled, marinas will ask boat owners to lift them out and clean their boats if they wish to continue keeping their boat at that marina.

Action 14A (freshwater and marine)

DAERA Marine and NIEA will explore the possibility of developing an accreditation scheme for marina operators that follow good biosecurity practice or will add IAS good practice to existing environmental recognition schemes, perhaps a 'star rating'.

Action 15 (freshwater and marine)

DAERA Marine/NIEA will encourage marinas and boat yards to provide suitable capture and filtration systems in hull cleaning areas and, where such facilities are not available, provide advice on simple methods for minimising the risk of IAS and other pollutants entering water bodies when cleaning is taking place.

Action 16 (freshwater and marine)

DAERA Marine/NIEA, in discussion with stakeholders, will compile and maintain a list of freshwater (in the first instance) sites/waterways that contain critical IAS (at UK, or Ireland levels) that are a priority to contain/slow the spread of (see Annex 7 for NI species of concern list) and where recreational boating occurs.

Action 16A (freshwater and marine)

Owners and managers of these sites will install facilities and signage to promote very high biosecurity, this may include:

- Single point of access and egress where possible
- Suitable hard standing (and boat storage) where relevant / possible
- Hot water (including steam) wash down facilities if possible (cold if not)
- Large prominent signage
- Enact local biosecurity by-laws where possible

Action 16B (freshwater)

Waterways Ireland, River Trusts, NIEA/DAERA and other relevant stakeholders will identify 'pinch points' in the canal network (such as the Shannon/Erne Waterway) on which biosecurity effort could be focussed to reduce the risk of spread from Ireland to Northern Ireland catchment network and implement proactive biosecurity measures at these points.

Action 17 (freshwater and marine)

DAERA/NIEA with support from GBNNSS resources will provide site-based biosecurity training for freshwater and marine marina / harbour operators in high priority areas (i.e. those identified in Action 15).

Data requirements and evidence gaps

The actions in this PAP are based on available evidence relating to the risk posed by recreational boats and potential mitigation. However, there is relatively little evidence available and further research could help to better understand and target biosecurity action. The Recreational Boating PAP working group highlighted evidence gaps that should be considered a priority:

1. Research is required to better understand what proportion of freshwater boats could be contaminated with viable IAS. Also, whether there are different levels of risk associated with different types of vessel, parts of vessels or activity.
2. Linked to (1), research is required into the effectiveness of CCD at removing viable IAS.
3. Does the material that boats are made from make a difference to that ability – wooden – clinker/carvel, fibreglass, steel etc.?
4. There are still large gaps in our understanding of the number of vessels (particularly freshwater) that enter NI/Ireland waters, from where and by which route.
5. The extent to which fouled marine vessels arrive in NI/Ireland is not quantified. It would be useful to understand the extent to which this occurs and, more importantly, where the majority of heavily fouled vessels originate from and where they arrive in NI/Ireland.
6. For marine vessels and canal boats, a major barrier to good biosecurity is the practicality of cleaning them. Research and innovation in improved methods could help to improve biosecurity.
7. Establish public database of any current locations where cleaning is carried out.

Monitoring and updating

The working group, once confirmed, will be re-convened annually to assess progress with achieving the actions. The group will consider all relevant information including the following:

- Number of organisations/clubs/authorities/sites signed up to adopt/promote CCD.
- Changes to baseline awareness and uptake of biosecurity among recreational boaters (following public attitudes survey).

Along with internal annual reviews, as per requirements of the Regulation, this Pathway Action Plan will be reviewed and reported to the Commission every six years.

References

1 The official title of the EU Invasive Alien Species Regulation is: Regulation (EU) No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1483614313362&uri=CELEX:32014R1143

2 An Invasive Alien Species Strategy for Northern Ireland (2013) https://www.daera-ni.gov.uk/sites/default/files/publications/doe/invasive-species-2013-4--web.pdf

3 The Marine Strategy Framework Directive. Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy https://www.legislation.gov.uk/eudr/2008/56/contents

4 Draft Environmental Strategy for Northern Ireland 2022 https://www.daera-ni.gov.uk/sites/default/files/consultations/daera/Draft%20Environment%20Strategy.PDF

5 Genovesi, P., Carboneras, C., Vilà. M., Walton, P. 2015. EU adopts innovative legislation on invasive species: a step towards a global response to biological invasions? Biological Invasions 17: 1307-1311.

6 Kelly, J., Tosh, D., Dale, K. and Jackson, A., 2013. The economic cost of invasive and non-native species in Ireland and Northern Ireland.

7 Council of Europe. European Code of Conduct on Recreational Boating and Invasive Alien Species. Strasbourg, 2016. Prepared by Ms Emma Barton, European Boating Association, on behalf of the Bern Convention.

8 The Invasive Alien Species (Enforcement and Permitting) Order (Northern Ireland) 2019 https://www.legislation.gov.uk/nisr/2019/159/made

9 The Wildlife (Northern Ireland) Order (1985) (as amended) https://www.legislation.gov.uk/nisi/1985/171/contents

10 Wildlife and Natural Environment (WANE) Act 2011 https://www.legislation.gov.uk/nia/2011/15/contents

11 Water Framework Directive (2000/60/EC) https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32000L0060

Annex 1 Proposed Working Group Membership (TBC)

Waterways Ireland (Chair)

Royal Yachting Association NI

Department of Agriculture Environment & Rural Affairs Belfast Harbours

All Ireland Rivers Trust Loughs Agency

Lough Neagh Partnership

Marine Management Organisation Ulster Angling Federation

Ulster Coarse Fishing Federation

Northern Ireland Federation of Sea Anglers

Northern Ireland Water

Northern Ireland Marine Task Force Canoe Association of NI (CANI) CanoeNI

Ulster Rowing Tourism NI

Cross border agencies/Irish Government

Membership of the working group is open to new parties throughout the Pathway Action Plan process. To request to become a member, please contact the NIEA INNS Team.

Annex 2: NI Code of Conduct on Recreational Boating and Invasive Alien Species

Ideas and texts for this code were drawn from the Council of Europe European Code of Conduct on Recreational Boating and Invasive Alien Species[1] and tailored to fit the requirements of Northern Ireland. It is primarily aimed at clubs and boating organisations as well as the managers and landowners of sites where recreational boating occurs.

Background

Invasive alien species (IAS) are plants, animals and diseases that are introduced by people and which have a negative impact. They are one of our most important environmental threats and can cause substantial economic damage and impacts on human health. The estimated annual cost of invasive species to the economies of Ireland and Northern Ireland is £161,027,307 (€202,894,406) and £46,526,218 (€58,623,034) respectively[2]. The current estimate of the annual combined UK and Ireland cost is £2 billion (€2.5 billion)[2]. Updated figures will be added when CABI UK report is published. They can cause problems for recreational boat users damaging equipment, fouling submerged structures, blocking water intakes, increasing maintenance costs, affecting navigation and reducing access to waterbodies.

Adopting preventative measures to avoid unintentional introduction and spread of IAS is widely accepted as the most effective approach to tackle their threat. The EU Invasive Alien Species Regulation[3] and Invasive Alien Species Strategy (Northern Ireland)[4] both aim to target pathways of IAS introductions, prioritizing them and putting measures in place to minimise their introduction and establishment.

Recreational boating, broadly defined as the use of boats designed or adapted for sport or leisure, is a potential pathway for both the introduction and spread of aquatic IAS in NI. Recreational boating is the leisurely activity of travelling by boat, or the recreational use of a boat. Approximately 3.9 million UK adults participated in a boating activity in 2018, constituting 7.3 percent of the population, meaning there is a significant risk that IAS could be introduced to or spread within NI or Ireland on boats, trailers or boating equipment. It is anticipated that through education, awareness raising, and behaviour change we will reduce the risk of introduction of IAS by recreational boating and ensure that boating forms part of the solution, acting as the 'eyes and ears', spotting and reporting the spread of IAS as well as participating in their control and eradication (volunteers and Citizen Science).

This code of conduct aims to encourage effective practices to prevent future movement of IAS by recreational boating activity. Boating organisations and institutions hosting boating activity on their waters also have an important role to educate boaters on the impacts of IAS and the importance of biosecurity. The recommendations outlined here aim to increase the engagement of boating organisations in their role in raising awareness of IAS.

Measures

This code consists of different measures for (1) clubs and boating organisations, and (2) managers and landowners of sites where recreational boating occurs, which are set out below. In each case, the code is separated into suggested minimum measures and more advanced recommendations to follow where possible.

(1) Clubs and boating organisations Suggested minimum:

- Assess the risks associated with activities undertaken by the club / organisation, including equipment used and sites visited.
- Inform staff and members of the risks posed by IAS and the need for good biosecurity.
- Provide biosecurity training opportunities for staff, members and others.
- Provide adequate biosecurity equipment, including cleaning facilities and drying rooms.
- Support awareness raising activities to inform all boaters about IAS and encourage good biosecurity; promoting the CCD campaign, providing signage and guidance and partaking in Invasive Species Week.
- Be aware of, and comply with, relevant policies, laws and byelaws, e.g. those that relate to boating and / or biosecurity.

Where possible:

- Appoint a biosecurity manager / champion within the organisation who will have responsibility for ensuring biosecurity measures are implemented.
- Recruit volunteers or staff members to supervise biosecurity procedures at meetings, events etc.

(2) Managers and landowners of sites where recreational boating occurs Suggested minimum:

- Assess the risks associated with activities undertaken on the site, including pathways of introduction into and away from the site, points of access and equipment used.
- Develop a biosecurity plan to minimise risk, including limiting access points, providing biosecurity facilities, raising awareness, and implementing relevant regulation.
- Inform staff and site users of the risks posed by IAS, the need for good biosecurity and ensure they know what to do / who to report to if an IAS is found at the site.
- Provide biosecurity training opportunities for staff, members and others.

- Provide adequate biosecurity equipment, including cleaning facilities and drying rooms.
- Support awareness raising activities to inform all boaters about IAS and encourage good biosecurity; promote the CCD campaign, including providing signage and guidance and partake in Invasive Species Week.

Where possible:

- Limit access and egress to the water, preferably to a single spot. This is particularly important where a new IAS has been identified. It is recommended that boaters should log in and out of site confirming they have Checked and Cleaned their clothing and equipment to allow containment.
- Provide boats and equipment at the site and use these in preference to personal equipment brought in from off site.
- Provide biosecurity stations / cleaning facilities. These should not be connected to the drainage system and should be inspected regularly.
- Appoint a biosecurity manager / champion within the organisation who will have responsibility for ensuring biosecurity measures are implemented.
- Recruit volunteers or staff members to supervise biosecurity procedures on the site.

References

1 Council of Europe. European Code of Conduct on Recreational Boating and Invasive Alien Species. Strasbourg, 2016. Prepared by Ms Emma Barton, European Boating Association, on behalf of the Bern Convention

2 Kelly, J., Tosh, D., Dale, K. and Jackson, A., 2013. The economic cost of invasive and non-native species in Ireland and Northern Ireland.

3 The official title of the EU Invasive Alien Species Regulation is: Regulation (EU) No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1483614313362&uri=CELEX:32014R1143

4 An Invasive Alien Species Strategy for Northern Ireland (2013) https://www.daera-ni.gov.uk/sites/default/files/publications/doe/invasive-species-2013-4--web.pdf

Annex 3. Biosecurity guidance for boat users

1. Background

This guidance refers to recreational boating, which is broadly defined as the use of boats designed or adapted for sport or leisure, whether by sail, oar, paddle and/or power. This includes, but is not limited to, dinghies, yachts, canal boats, personal water craft (commonly known as “jet skis”) and craft used for paddling and rowing activities. The trailers and associated equipment for these types of boats is included. It does not cover commercial vessels and their ballast. Reference to ‘boats’ or ‘boating’ herein is therefore intended to refer to a wide range of craft, in line with this definition.

Good biosecurity practice should be followed by all those involved in recreational boating to avoid the introduction and spread of invasive alien species/invasive non- native species (IAS). However, some activities are more likely to introduce or spread IAS than others. In cases of heightened risk, more comprehensive biosecurity measures are required. Different biosecurity measures may also be required depending on the vessels and activities involved. The aim of this document is to provide a single text that brings together broad biosecurity advice for different activities, vessels and levels of risk associated with recreational boating.

This guidance is aimed at those that advise boat users but can also be followed by boat users themselves. It can be modified / elaborated if necessary to suit a particular need or activity as long as this is in support of the basic principles of biosecurity.

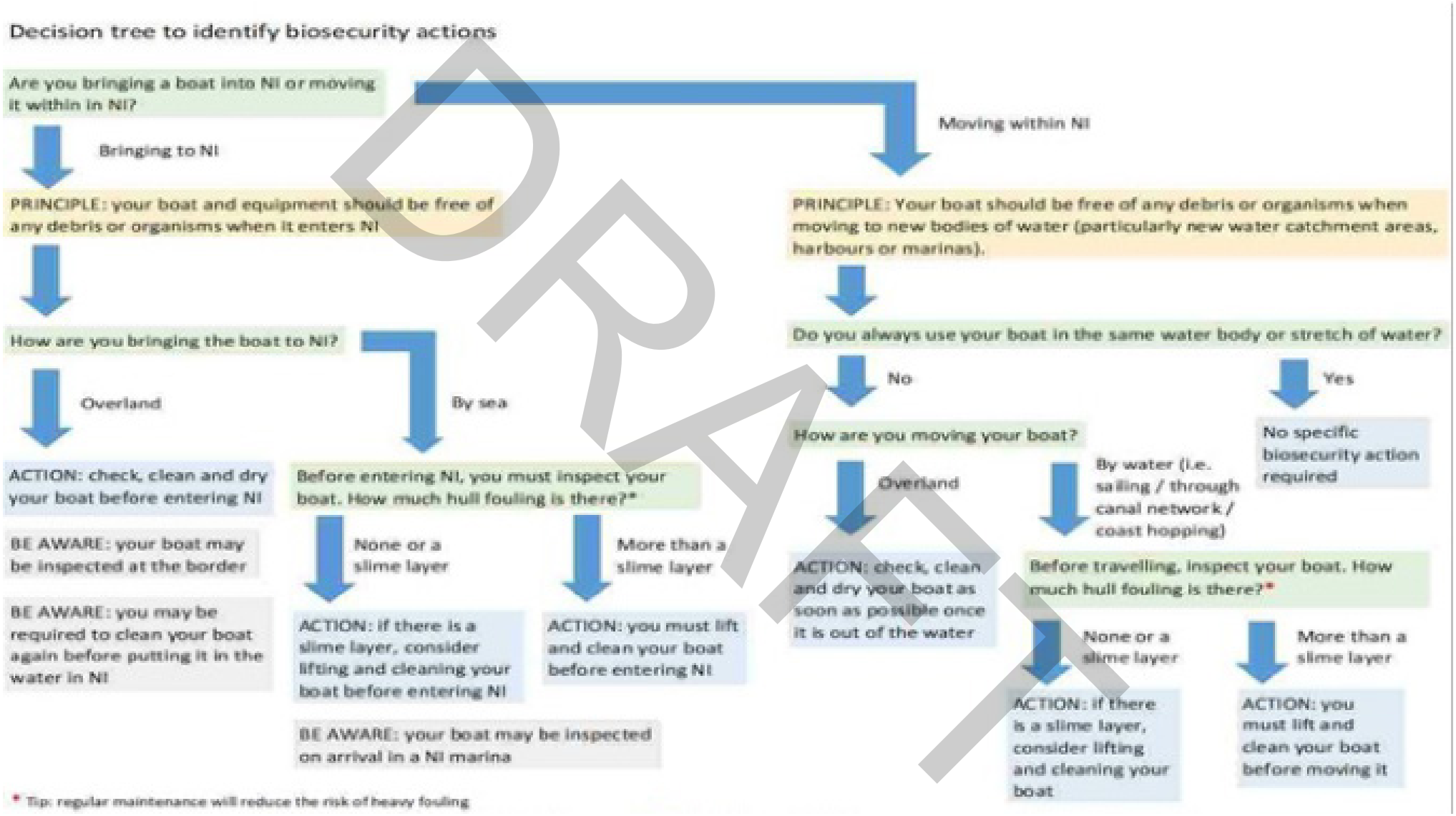
This guidance was compiled by the GB Recreational Boating PAP Working Group. NIEA have adapted some of the content to be specific to Northern Ireland.

2. Principles of biosecurity, relevant to all recreational boat users

Recreational boats moved between water bodies, or sailed to new stretches of water, should be free of viable material (e.g. seeds, plant / algal fragments, eggs, larvae, animals) that might introduce a non-native species. In practice, these can be very small (sometimes not visible to the naked eye), so boat users and commercial providers should make sure no visible organic matter or water is moved with the boat and that the boat is Checked, Cleaned and Dried (where practical) between movements. While biosecurity is important for all movements of recreational boats it is particularly important when bringing a boat into Northern Ireland from abroad or moving a boat between unconnected water bodies and coastal regions.

3. Sample decision tree to help identify biosecurity actions

This diagram provides a quick reference guide to what biosecurity action must be taken in different scenarios, recognising some activities may be associated with higher biosecurity risk and the ability to implement biosecurity actions may differ between activities. This diagram identifies actions that must be taken, guidance for which is provided in following pages.


Decision tree to identify biosecurity actions
Are you bringing a boat into NI or moving it within in NI?
Bringing to NI
Moving within NI
PRINCIPLE: your boat and equipment should be free of any debris or organisms when it enters NI
PRINCIPLE: Your boat should be free of any debris or organisms when moving to new bodies of water (particularly new water catchment areas, harbours or marinas).
How are you bringing the boat to NI?
Overland
By sea
ACTION: check, clean and dry your boat before entering NI
BE AWARE: your boat may be inspected at the border
BE AWARE: you may be required to clean your boat again before putting it in the water in NI
Before entering NI, you must inspect your boat. How much hull fouling is there?*
None or a slime layer
More than a slime layer
ACTION: if there is a slime layer, consider lifting and cleaning your boat before entering NI
ACTION: you must lift and clean your boat before entering NI
BE AWARE: your boat may be inspected on arrival in a NI marina
Do you always use your boat in the same water body or stretch of water?
No
Yes
No specific biosecurity action required
How are you moving your boat?
Overland
By water (i.e. sailing / through canal network / coast hopping)
ACTION: check, clean and dry your boat as soon as possible once it is out of the water
Before travelling, inspect your boat. How much hull fouling is there?*
None or a slime layer
More than a slime layer
ACTION: if there is a slime layer, consider lifting and cleaning your boat
ACTION: you must lift and clean your boat before moving it
* Tip: regular maintenance will reduce the risk of heavy fouling

4. Basic Check, Clean, Dry for all recreational boaters

When moving between water bodies or to new stretches of water recreational boat users should Check, Clean and Dry:

- **Check**

  ✔ Check boats, equipment and clothing after leaving the water for mud, aquatic animals or plant material. Remove anything you find and leave it at the site. Reapply anti fouling annually.

- **Clean**

  ✔ Clean everything thoroughly as soon as you can, paying attention to ropes, bilges, trailers, and areas that are damp and hard to access. Use hot water if you can.

- **Dry**

  ✔ Drain water from every part of your boat and trailer before leaving the site. Dry everything for as long as possible before using elsewhere as some invasive plants and animals can survive for two weeks in damp conditions.

Find useful CCD resources including posters, signage and instructional videos on the Invasive Species Northern Ireland website.

All recreational boat owners should also:

- Be aware of the increased risk of bringing boats and equipment into NI from abroad.
- Be aware of the increased risk when placing a boat into a water body with particularly sensitive ecology, such as a NNR, AONB, ASSI, MPZ, or SAC.
- Apply Check, Clean and Dry to all equipment that comes in contact with the water, including trailers, anchors, clothing and other equipment (e.g. angling gear).
- Avoid sailing or paddling through patches of weed (which could contain IAS).
- If engines are used, raise propellers out of the water to minimise the risk of IAS entering the engine and ensure all water is drained / filters are cleaned after use.
- Be familiar with local by-laws pertaining to biosecurity.

5. Additional detailed guidance for those advising boat users

It can be difficult and expensive to lift marine vessels out of the water and Check, Clean and Dry them. You can limit this cost by maintaining your boat in good condition and following this guidance:

Before use:

- An appropriate anti-fouling coating system and good maintenance can help prevent biofouling accumulation (see section 9 for details).
- Boats should be used regularly to reduce the risk of biofouling of the hull and engine. If you have not used your boat in a while, lift and clean it before you move to a new stretch of water. If you know you will not be using your boat for a while, consider having it hauled out and dry-stored.
- If your vessel is lightly fouled (i.e. a slime layer or less) you can help prevent the build-up of fouling by cleaning it in-water. However, if there is more than a slime layer you should lift your boat out of the water and clean it on shore - it is illegal to clean your boat in-water if it has more than a slime layer.

On the water:

- If the boat is not in use and stationary for a period of time, if possible, raise propellers (outboard motors) out of the water to minimise the risk of IAS entering the engine.
- If an anchor has been used, wash off both the anchor and chain before stowing.
- Any structures or equipment such as pontoons, piles and buoys which have been submerged in water for a time also pose a higher risk of spreading IAS and so care should be taken when working with them to avoid the spread. This would include taking them out of the water for cleaning before being moved to a new site.

After use:

- Once the boat is on shore, remove all visible plant and animal material and put in the bin.
- Use clean water to wash down all parts of the boat that have been in contact with the water (including outboard, trailer and trolley/vehicle tyres). Pay attention to any crevices. Flush outboard engines with clean water before leaving the site using appropriate equipment, flush muffs in accordance with manufacturer's recommendations.
- Drain all water from the boat, including bilges. Allow the water to drain completely from engines by placing them in a vertical down position.

- Check, Clean and Dry all equipment, clothing and footwear. Drying for as long as possible is important because some IAS can survive for over two weeks in damp conditions.
- If clean water washing facilities are not available on site, ensure that the boat is washed down, drained and dried prior to arrival at another waterbody.
- Ensure that any wash water run-off or water emptied from boats after use does not drain into another waterbody.

Boat storage on land:

- Store boats and outboard engines in a location where any run-off does not drain into a waterbody (e.g. drains, gullies or rivers).
- Return any engines to their vertical down position to drain.
- Use the general waste bin to dispose of any plant or animal material found in prop bags or other equipment.

6. Paddle sports and rowers

The basic biosecurity advice above, as well as some of the additional detailed guidance, is relevant to those partaking in paddle sports.

- In addition, when cleaning boats, paddlers and rowers should pay particular attention to the bow and stern of the boat, under the seats and rims and behind buoyancy bags and foot rests.
- A towel or sponge can be used to dry kit but will need to be washed after use (unless you can dry them out properly between uses). You might need to think of innovative ways of reaching inside the end of your boat but it is important to do so.
- When cleaning equipment, pay particular attention to folds of cagoules, dry suits, buoyancy aids, spray-decks, throw-lines, and the clothes you wear under your cagoules.
- Encourage all fellow paddlers to follow good biosecurity practice.

7. Narrow boats and other boats that use canals

Many types of vessels use canals, all of which should endeavour to apply as many of the basic and detailed biosecurity measures as possible.

In addition, for boats being removed from water:

- Apply the basic CCD measures above, paying particularly attention to fenders, props and the lip around boat. Make sure the boat is free of any organic material before being placed back in the water.

Boats staying in the inland waterway network for long periods:

- Avoid taking your boat through patches of weed, which could spread them further through the canal network.
- If your boat has more than a slime layer of biofoul ideally it should be lifted out of the water and cleaned before being moved elsewhere.
- Apply regular short bursts of reverse thrust when underway to throw off and unwrap any weed caught around prop.
- Periodically carry out a visual inspection to see if any weed can be observed caught up on fenders or transoms for example.
- If your vessel has an inboard engine Check any weed filters or strainers and clear them regularly.
- If the vessel is a narrowboat, lift and Check for weed via the weed hatch where fitted and when safe to do so.

8. Hot Water Treatment

Where possible the use of hot water can provide a simple, rapid and effective method to clean equipment.

- Submerging equipment for about 15 minutes at around 45°C can effectively kill a number of significant aquatic IAS.
- This technique is useful for participants who may be cleaning equipment such as wetsuits when they return home, however it is not practical for cleaning large equipment such as boats.
- If hot water is available on site, hot pressure washers can also be effective for cleaning boat hulls.
- Use of chemicals is not recommended as not all species are susceptible to each product.

9. Antifouling

An appropriate antifouling coating system and good maintenance are the best way of preventing biofouling accumulation for boats kept on the water.

Lifting out, cleaning and antifouling annually keeps boat hulls clean, and has environmental benefits including both preventing the spread of IAS and improving fuel efficiency.

Different antifouling coating systems suit different operating profiles. An appropriate antifouling coating should be chosen by seeking expert advice and considering the time period between coatings, the use, location and type of the vessel and any legal requirements in the country of use.

It is important to note that antifoul may not be effective against all species in all areas, for example, some types of antifoul are thought to be ineffective against biofouling by zebra mussels. Therefore, appropriate antifouling should be combined with good maintenance, cleaning and the Check, Clean, Dry approach where possible. The more a boat is used the less likely species will accumulate and the more effective any antifouling will be. By using the boat regularly over summer/growing season, the level of fouling can be reduced.

Antifouling is, by its nature, toxic to aquatic life. Since the banning of Tributyltin (TBT), most antifouls are now copper or zinc based. Available biocides are regulated by European and national regulations; however, during evaluation of these products, their toxicity should be balanced with their efficacy against biofouling, particularly by aquatic invasive non-native species.

Some of the compounds found in these antifouls can enter the environment through leaching or during removal of the paint, accumulating in organisms, forming concentrated deposits in the sediments and finding their way into wildlife further up the food chain. Boat owners can play a vital role in preventing concentrated scrapings from entering the water by following this best practice advice:

When removing antifoul:

- Select a marina, club or boatyard which has a wash-down facility which collects residues and captures run off from wash down or prevent antifoul scrapings from entering the water by collecting in a tarpaulin.
- Use a dustless vacuum sander or wet abrasion to reduce toxic dust and to protect the user's health.
- If using scrubbing piles, only scrub off the fouling and not the underlying paint - be careful not to let old or new paint enter the water.

When applying antifoul:

- Select the right type of antifouling for the area and boat usage, choosing the lowest levels of biocides and copper suitable for your needs – take advice from the local chandlery. Use water-based paints where possible, or paints low in Volatile Organic Compounds or look into using less damaging bottom paints, such as vinyl, silicone or Teflon, which are suitable for in-water hull cleaning systems.

- Apply the right amount of antifouling required and do not spill it – when applying use a sheet to collect drips.
- Dispose of used brushes, rollers and trays and empty cans of antifoul as hazardous waste.

10. In-water cleaning of marine vessels

It is always preferable to clean boats out of the water where waste can be effectively captured for proper disposal.

The Marine Licensing (Exempted Activities) Order (NI) 2011[1]:

DAERA consulted on this issue resulting in article 15 of The Marine Licensing (Exempted Activities) (Amendment) Order (NI) 2022 inserting a new article 27A into the 2011 Order. This provides for the deposit of a substance removed from that part of the hull of a vessel provided it has been cleaned by hand using either a soft cloth; a sponge; the bristles of a soft brush, or sandpaper, the grit size of which is at least P20002. This means that a marine licence is not required for the in water cleaning of lightly fouled vessels. This means that we are now in regulatory alignment with England.

The Department wishes to emphasise that only the equipment specified in the amending Article is to be used, which includes:

- a soft cloth,
- a sponge,
- the bristles of a soft brush, and
- sandpaper, the grit size of which is at least P2000.

Rinsing or cleaning with any type of powered/pressure or additional equipment would need a marine licence. The usage of equipment of that nature without obtaining a marine licence could result in enforcement action. This proposed amendment mirrors that in the English Order.

The objective of the new exemption is to balance the risk of in-water cleaning of lightly fouled vessels while reducing the risk of marine invasive alien species being introduced or spread on the hulls of vessels.

An example of this is the invasive non-native carpet sea-squirt *(Didemnum vexillum)*, which is a significant threat to reef biodiversity and an aquaculture nuisance. It spreads as a fouling agent and its distribution in the UK suggests boating has played a significant role. This and other invasive non-native species are now established in NI waters with the potential to be spread by vessels and threaten native species.

NI stakeholders have expressed concerns that it is unreasonable to be expected to haul out and clean lightly fouled vessels with the costs associated with this activity being prohibitive. This is why the changes were made to article 15 of The Marine Licensing (Exempted Activities) (Amendment) Order (NI) 2022 inserting a new article 27A into the 2011 Order.

The risk to the marine environment of undertaking gentle cleaning of lightly fouled hulls in-water is considered low, if the anti-foul coating is not damaged. Whereas the risk associated with heavier fouling can be high.

If more significant fouling is allowed to develop, the affected vessel must be removed from the water and scrapings from the hull deposited in landfill to minimise the risk of introducing or spreading invasive non-native species.

No notification requirement is proposed.

1 The Marine Licensing (Exempted Activities) Order (Northern Ireland) 2011 https://www.legislation.gov.uk/nisr/2011/78/contents/made

Annex 4. Biosecurity clause for club constitutions Biosecurity

Members of the Club are asked to undertake good biosecurity practice when using their equipment.

This includes:

- Making sure that your equipment, including boats, trailers, and clothing, is clean and free of any mud, plant material or pooled water prior to arriving on site.
- After every use, cleaning your boats, trailers, clothing, and other equipment in accordance with Check, Clean, Dry guidance. Particular care should be given to areas where water may pool or be trapped, including within the hollow elements of trailers and outboard engines (if used).
- Any visitors to the Club are asked to follow the same Check, Clean, Dry guidance.

Annex 5. Example of biosecurity included in by-law / agreement with boaters

Excerpt from:

Anglian Water Services Limited Water Industry Act 1991 - Water Parks Byelaws 2014
Boats and Boating

17. Use and Sailing of Boats etc.

17.1 No person shall, without the consent of Anglian Water launch, use or sail any boat on any water in a water park.

17. 2 No person shall use or sail any boat on any water in a water park without complying with current biosecurity requirements agreed between Anglian Water and Defra having regard to any guidelines published by the GB Non- native Species Secretariat and by notice exhibited in a conspicuous position or published by any other means.

17.3 No person shall use of sail on any water in a water park any boat otherwise than in accordance with such terms and conditions as may be specified in any such consent.

View the original source (external link).

Annex 6. Biosecurity clause for inclusion in berthing agreement terms and conditions

Biosecurity

For the purposes of this agreement Hull fouling is defined as the accumulation of aquatic organisms (plants and animals) on the surface of the Vessel, beyond that of a slime layer.

You must ensure the Vessel is free of Hull fouling before it is placed into the Berth [or mooring] and while it is kept there.

If Hull fouling is present, you must lift and clean the Vessel, preventing any removed material from re-entering the water. You must inform the Company and agree a timescale over which to clear the Vessel.

If the Vessel is not cleaned within this time, the Company reserves the right to lift and clean the Vessel at your expense

Annex 7. Draft list of freshwater & marine species IAS of concern to Northern Ireland - for discussion.

List of freshwater, marine and pathogen species that are priority concern to keep out of Northern Ireland1 and for which there may be a risk of introduction via recreational boating. Some are already present here in low levels and some are more widespread and present in Ireland, GB waters and on mainland Europe. (Those highlighted in red are alert species for NI).

Scientific name	Common name	Taxon group	Present in NI	Date first recorded in NI	Notes
Asparagropsis armata	Harpoon weed	Marine algae	Yes	2016	Present in Narrow Water Keep, Strangford Lough and two incidences in Belfast Lough
Asterocarpa humilis	Compass sea squirt	Tunicate	Yes	2017	Recorded at Church Bay; Rathlin Island, Bangor Yacht Club and Strangford Lough
Bonnemaisonia Hamifera	A red macroalgae	Marine algae	Yes	2002	Abundant across the NI coasts
Caprella mutica	Japanese skeleton shrimp	Crustacean	Yes	2009	Localised distribution; Glenarm Marina, Rathlin Island, Strangford Lough and Belfast Lough
Caulacanthus okamurae	Pom-pom weed	Marine algae	Yes	2016	
Cercopagis pengoi	Fishhook Waterflea	Crustacean	No		
Crepidula fornicate	American slipper limpet	Mollusc	Yes	2009	Only viable population recorded in Belfast Lough
Didemnum vexillium	Carpet sea squirt	Tunicate	Yes	2012	Localised distribution in Strangford Lough
Ensis dorectus	American razor clam	Mollusc	No		
Gracilaria vermiculophylla	A red macroalgae	Marine algae	Yes	2012	

Scientific name	Common name	Taxon group	Present in NI	Date first recorded in NI	Notes
Grateloupia turuturu	Devil's tongue weed	Marine algae	Yes	2017	Localised to Millbay, Larne Lough and Carrickfergus Marina
Hemigrapsus sanguineus	Asian shore crab	Crustacean	No		
Hemigrapsus takanoi	Brush-clawed shore crab	Crustacean	No		
Hesperibalanus fallax	Warm-water barnacle	Crustacean	No		
Homarus americanus	American lobster	Crustacean	No		
Mnemiopsis loidyi	Water comb jelly; Sea walnut	Ctenophore	No		
Neogobius Gymnotrachelus	Racer goby	Fish	No		
Ocenebra inornata	Asian oyster drill	Mollusc	No		
Proterorhinus marmoratus	Tubenose goby	Fish	No		
Rapana venosa	Veined rapa whelk	Mollusc	No		
Sargassum muticum	Japanese wireweed	Marine algae	Yes	2002	Can also tolerate estuarine environments
Styela clava	Leathery sea squirt	Tunicate	Yes	2008	First recorded in Larne Lough and now present in Belfast Lough
Undaria pinnatifida	Wakame	Marine algae	Yes	2012	Recorded in Glenarm, Carrickfergus, and Carlingford marinas

Freshwater Species

Scientific name	Common name	Taxon group	Present in NI	Date first recorded in NI	Notes
Alternaterna philoxeroides	Alligator weed	Plant	No		
Astacus astacus	Noble crayfish	Crustacean	No		
Cabomba caroliniana	Fanwort	Plant	No		
Chelicorophium robustum	Corophiid Amphipod	Amphipod	No		Found in both freshwater and brackish environments
Corbicula fluminea	Asian clam	Mollusc	Yes	2016	Localised to the River Foyle
Dikerogammarus bispinosus	N/A	Amphipod	No		
Dikerogammarus haemobaphes	Demon shrimp	Amphipod	No		
Dikerogammarus villosus	Killer shrimp	Amphipod	No		
Dreissena bugensisi	Quagga mussel	Mollusc	No		Recorded in Shannon Catchment, Ireland in 2021
Echinogammarus ischnus	N/A	Amphipod	No		Also inhabits brackish waters
Echinogammarus trichiatus	N/A	Amphipod	No		Also inhabits brackish waters
Eriocheir sinensis	Chinese mitten crab	Crustacean	No		Present in Waterford Harbour, Ireland
Hypania invalida	N/A	Polychaete	No		Also inhabits brackish waters
Myriophyllum *Heterophyllum*	Various leaved water milfoil	Plant	No		

Scientific name	Common name	Taxon group	Present in NI	Date first recorded in NI	Notes
Limnomysis benedeni	N/A	Mysid	No		Also inhabits brackish waters
Ludwigia grandiflora spp	Water primrose	Plant	No		
Neogobius melanostomus	Round goby	Fish	No		
Obesogammarus crassus	N/A	Amphipod	No		Also inhabits brackish waters
Oncorhynchus gorbuscha	Pacific or pink humpback salmon	Fish	Yes	2017	Two incidences. One at River Bush Salmon Research Station, another in River Mourne, Sion Mills
Orconectes limosus	Spiny-cheek crayfish	Crustacean	No		
Pacifastacus leniusculus	American signal crayfish	Crustacean	No		
Proterorhinus Semiluaris	Freshwater tubenose goby	Fish	No		
Pseudorasbora parva	Topmouth gudgeon	Fish	No		
Sander lucioperca	Zander	Fish	No		

Parasite/mould

Scientific name	Common name	How to identify it	Present in NI	Notes
Salmon isavirus	Infectious salmon anaemia (ISA) virus	Fish behave lethargically. They swim near the surface and often vertically when gasping. They are reluctant to feed. Symptoms normally develop slowly and include a distended abdomen, protruding bloodshot eyes and pale swollen gills[2].	No	First recorded in the West of Ireland in 2002. Ireland since declared free of ISA in 2009
Aphanomyces astaci	Crayfish plague disease	Many dead or dying White-clawed crayfish *(Austropotamobius pallipes)*, our native crayfish species.	Yes	Recorded in NI in 2018 in the headwaters of the River Blackwater near Aughentaine, Co. Tyrone
Gyrodactylus salaris	Salmon fluke	Specialist knowledge needed. Heavily infected fish normally have damaged fins, in particular the dorsal, caudal and pectorals and there may be copious mucus production. Infested fish are normally lethargic[2].	No	
Report suspected cases of these diseases to DAERA Inland Fisheries				

References

1 Lucy, F.E., Davis, E., Anderson, R., Booy, O., Bradley, K., Britton, J.R., Byrne, C., Caffrey, J.M., Coughlan, N.E., Crane, K. and Cuthbert, R.N., 2020. Horizon scan of invasive alien species for the island of Ireland. *Management of Biological Invasions,* 11(2), pp.155-177.

2 Minchin, D., 2014. Risk assessment of non-indigenous marine species, Ireland: including those expected in inland waters. Report undertaken for The Centre for Environmental Data and Recording (CEDaR), Department of Natural Sciences, National Museums, Northern Ireland (NMNI) and the Department of Arts, Heritage and the Gaeltacht [Ref: NIS-2014# 1], 139 pp.

Annex 8. Check, Clean, Dry Biosecurity resources to raise awareness

These resources and more can be found on the Invasive Species Northern Ireland website, where they are free to download and use for your club or event, to raise awareness and help tackle the introduction and spread of IAS. These resources were developed by GBNNS and adapted by NIEA for NI.

1) Check, Clean, Dry campaign posters for aquatic boating, marine boating, inland waterways and canal boating and paddling sports:

2) Check, Clean, Dry leaflets for aquatic boating, marine boating, inland waterways and canal boating and paddling sports:

3) Check, Clean, Dry posters to increase awareness of biosecurity around ports and borders for boaters and paddlers:

4) Sign/poster for site owners and managers:

Annex 9. Timetable for drafted actions and other tasks to be discussed with the working group

Task	Deadline	Responsible
Consultation	June 2023	DAERA and Permanent Secretary
Publication of PAP	November 2023	DAERA
Confirmation of working group membership	Within 6 months of final publication of PAP	DAERA/NIEA
Action 1 Action 2	Within 6 months of final publication of PAP	DAERA/NIEA
Action 3 Action 3A Action 4	November 2024	DAERA and relevant BIC jurisdictions
Action 5	November 2024	DAERA and relevant members of the Working Group
Action 6	By June 2025	DAERA and relevant stakeholders
Action 7	Lists to be completed by invasive species week, annually (first list produced by ISW 2025)	DAERA and the Working Group
Action 7A	From when the first list is produced (action 7)	Site owners/managers and event organisers
Action 8	In time for ISW 2025	Relevant stakeholders
Action 9	June 2025	Relevant stakeholders
Action 10	June 2025	DAERA Marine/NIEA
Action 11	June 2025	Working group and key actors
Action 12	Campaign run for Invasive Species Week 2024; review effectiveness before ISW 2025	DAERA and key actors
Action 13	From June 2024, all new lease/ management agreements going forward must meet requirements	Relevant working group members and overarching bodies
Action 14 Action 14A	June 2024	DAERA Marine and NIEA
Action 15	June 2024	Marina and boatyard owners/ managers
Action 16	June 2024	DAERA Marine, NIEA and stakeholders

Task	Deadline	Responsible
Action 16A	November 2025	Owners and managers of priority sites identified from Action 16
Action 16B	June 2024	DAREA/NIEA and relevant stakeholders
Action 17	June 2025	DAERA/NIEA
Monitoring the progress and effectiveness of actions	Working group will be re-convened annually The PAP will be reviewed and reported to the Commission every 6 years	Working group DAERA

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