A Guide to Planning and Developing Small Vessel Water Trails in Ireland

Waterways Ireland
Uiscebhealaí Éireann Watterweys Airlann

Developed by Waterways Ireland and the Irish Sports Council / National Trails Office in conjunction with Irish Leisure Consultants (ILC)

THE IRISH SPORTS COUNCIL

national trails office
An Irish Sports Council Initiative

Canoeing Ireland

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Table of Contents

Welcome Note

This guide has emerged in response to growing levels of interest in water-based recreation in Ireland and to harness the potential that exists to develop water-based recreation trails. Whilst there has been a notable increase in interest in water based activities such as surfing, sailing, kayaking and snorkelling in Ireland in recent years, there is still very little infrastructure in place to support and encourage more people to enjoy our wonderful inland and coastal water resources.

Ireland has a variety of inland waterways, rivers and coastal environments suitable for many outdoor recreation activities. This guide seeks to unlock some of the potential that exists for water recreation on our waterways through the development of water trails. This guide has been developed by Waterways Ireland and the Irish Sports Council/National Trails Office in conjunction with Irish Leisure Consultants and the national governing bodies of Canoeing Ireland and the Irish Underwater Council.

This guide provides detailed information and advice for planning and developing small vessel water trails on inland waterways and the coast of Ireland. The locations of these trails include placid water sites (lakes and canals), inland moving water (rivers and constructed channels), and sea (sheltered coasts and estuaries).

The ultimate aim of the guide is to encourage the development of safe and sustainable water trails in Ireland, where trails are:

a. Only developed on appropriate water courses and locations
b. Planned and developed in consultation with landowners and other agencies
c. Developed to ensure minimal impact on water courses, the environment and local heritage
d. Have the necessary infrastructure in place to ensure safe and pleasant passage to all trail users
e. Have a clear plan in place to facilitate long term management and maintenance of the trail

This guide limits itself to introductory and intermediate level small vessel trails (Grades 1 to 3), as defined by the international river grading system, and sets out a development process that can be followed by all organisations involved in water trail projects.

Acknowledgements

We would like to acknowledge and thank staff within the following organisations for their cooperation and input in the preparation of this guide: Irish Leisure Consultants, Waterways Ireland, Irish Sports Council/National Trails Office, Inland Fisheries Ireland, Canoeing Ireland, Irish Underwater Council (CFT), Shannon Development, Irish Water Safety, Trails Kilkenny, Angling Council of Ireland.

We would also like to acknowledge the following for images in the publication: Valerie O'Sullivan, Jim Kennedy, Benny Cullen, Humphrey Murphy, Fermanagh Lodges and Pods Ireland.

[1] Small vessels refer to self-propelled water craft capable of being "man-handled" onto and off the waterway by one or two people – examples include: canoes, kayaks, rowing boats and paddle boards. This guide can also assist in the planning and development of snorkel trails in Ireland. The terms "Small Vessel Trail" and "Waterway Trail" are used interchangeably within this document.

Agency Overview

Waterways Ireland is one of six North-South Implementation Bodies established in 1999 under the British-Irish Agreement Act, 1999, and the supplementary North/South Co-operation (Implementation Bodies) (Northern Ireland), Order 1999. Waterways Ireland is charged with the management, maintenance, development and restoration of certain inland navigable waterway systems throughout the island of Ireland, principally for recreational purposes. Waterways Ireland has responsibility for the following systems:

- The Barrow Navigation
- The Erne System
- The Grand Canal
- The Lower Bann Navigation
- The Royal Canal
- The Shannon-Erne Waterway
- The Shannon Navigation
- The Ulster Canal

Waterways Ireland has responsibility from a navigational and recreational perspective for over 1,000km of waterway in both the Republic of Ireland and Northern Ireland.

In exercise of its duties and functions Waterways Ireland has formulated this guide in partnership with the Irish Sports Council/National Trails Office. The guide will create the template for the development of a network of canoe/kayak and small vessel trails on the island of Ireland. It builds on the scoping and planning work undertaken in 2011 by Waterways Ireland on a number of stretches of waterway, and provides the template for future trail development on inland waterways and coastal waters all across the island of Ireland.

www.waterwaysireland.org

The Irish Sports Council coordinates a national trails programme through the National Trails Office (NTO) and the National Trails Advisory Committee (NTAC). The National Trails Office maintains a register of all recreational trails developed in Ireland and provides technical advice and support on trail development projects. NTO promotes high standards and good practice for trails, and undertakes awareness building and promotional initiatives aimed at increasing knowledge and usage of recreational trails by Irish residents and visitors to the country.

www.irishtrails.ie

Canoeing Ireland is the national governing body for canoeing in Ireland and is affiliated to the International and European Canoe Federations. The aims and objectives of Canoeing Ireland include:

- The promotion of canoeing in all its forms.
- To select, train and administer competitors to represent Ireland at international events.
- To arrange and provide the holding of instruction in canoeing skills and techniques, and to promote safety.

www.canoe.ie

The Irish Underwater Council (CFT) is the national governing body for recreational underwater sports in Ireland. It was founded in 1963 to organise and promote sport scuba diving and snorkelling, and has grown to incorporate over 80 clubs island-wide.

www.diving.ie

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General Information

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1.1 Introduction to Small Vessel Water Trails

Small vessel water trails provide the infrastructure for people to engage with water sports, attracting more people into the Irish countryside, and in so doing facilitate healthier lifestyles, social interactions and economic development.

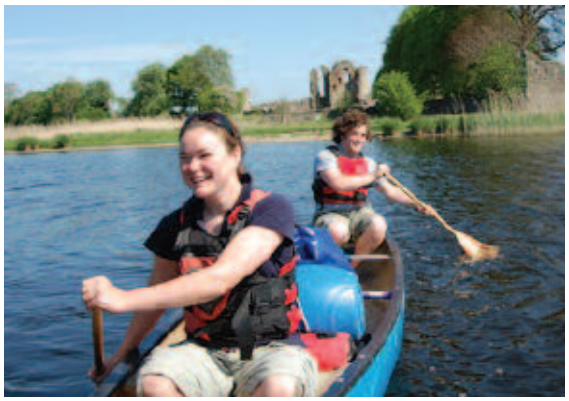
Inexperienced water-sports participants and visiting tourists often lack the knowledge, experience and confidence to sample new activities or new locations in the absence of support. Similarly commercial and community water-sports interests seeking to provide water-sports services may be hampered by a lack of infrastructure at suitable venues.

Trails facilitate both the uncertain participant and the supplier of support services. A trail provides a defined route and supporting information and infrastructure – which enables the trail user to make an informed decision and more easily participate in an activity. A trail also encourages the provision of support services – which can enhance the trail users experience, and also provide an economic return for the host community.

In addition to the direct benefits to the trail user and service providers, trails can also reduce environmental damage by steering participants away from delicate habitats, increase safety by highlighting risks and identifying alternatives, and encourage stewardship by linking people with their environment and heritage.

Small vessel trails can be developed to attract a wide range of different trail users. Some trail users seek a wilderness setting; others may want to use a placid canal to traverse an urban landscape; or others require moving water to challenge their skills. Small Vessel Trails may also provide a start point for a wider recreational experience – for example an angler may kayak a trail as part of a fishing activity, a family in order to access a camping spot; a tourist as a means of avoiding other tourist; and a local may use the trail as a means of generating an income through boat hire and instruction.

All trail users should be welcome – once they respect the trail environment, and also the rights and reasonable expectations of other trail users and stakeholders. A trail developer must however identify which type of trail user is likely to be attracted to their particular trail, and develop the trail accordingly.



1.2 Introduction to Canoeing in Ireland

Canoeing is likely to be the most popular activity on small vessel trails, and hence the following section provides information on the specific needs, and trail design requirements, of the canoeing/kayaking participant.

Canoeing is the collective term used to describe a wide-ranging sport which is accessible across a range of ages and abilities – as a form of recreation, or as a means of competition. While there are structured and vibrant competitive canoeing disciplines, canoe/kayak sport is primarily a recreational activity for most participants. Similar to hill walking, canoeing can be enjoyed without any competitive objective, and canoe/kayak trails will typically be used for non-competitive recreational activities. Canoeing is normally a group activity – either in organised groups (club, youth, school), or informally in small ad-hoc groups of friends. Solo canoeing is neither popular nor encouraged due to safety issues, however individual participation is growing, and is in the future more likely to be encountered on defined trails[2].

Canoe/kayak trail users are most likely to fall into the following categories:

- **Led Groups:** Canoeing is frequently used as a mechanism for personal development and wilderness encounters delivered by commercial or not-for-profit organisations. Typically these groups are at an introductory level and will travel a linear section of river for over 2 to 3 hours, or all day during periods of good to reasonable weather. These groups tend to be dominated by school age participants, however family group participation is also increasing. Led group sizes can range from as few as 3 participants to the more typical 10 to 15. Aside from Gaisce groups and the Duke of Edinburgh Award groups, most led groups do not camp as part of the canoeing journey.

- **Peer Groups:** A growing trend is for small groups of friends to travel along canals, rivers and the coastline as part of a wilderness experience. The growth in popularity of "sit-on-top" type recreational canoes supports this beginner-to-intermediate level peer group type participation.

- **Individuals:** Solo canoeing is typically undertaken as part of a competition training process, however it occurs infrequently and is not considered to be a safe practise. Solo canoeing is more likely to take place on placid water trails. It is likely that individual solo canoeing will represent a very small proportion of waterway trail passages in Ireland.

1.2.1 Canoeing / Kayaking Craft

A variety of water craft may be used by paddling enthusiasts:

- **Open canoes:** sometimes referred to as Canadian canoes or Indian canoes, these are open decked craft typically with fixed seats at the bow and stern. The participant may sit or kneel when canoeing and uses a single bladed paddle.
- **Kayaks:** these are the more commonly known craft, in which the participant is enclosed under a deck in a seated position and uses a double bladed paddle.
- **"Sit-on-Top":** this craft has emerged relatively recently and is a blend of the open canoe and the kayak. Thus it has the hull characteristics and approximate size of a kayak, but it has no deck and the user sits in a moulded plastic recess.

[2] Assimilated from anecdotal evidence and UK data on water-sports participation.

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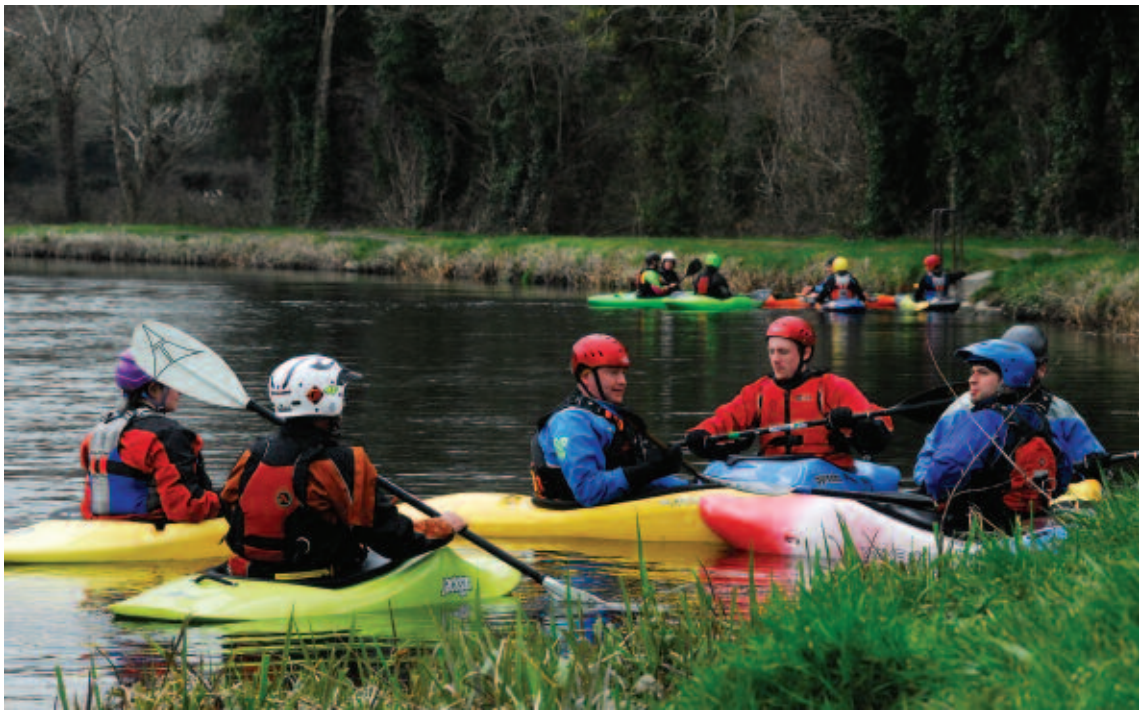
Previously a niche sport, canoeing is now growing in popularity due to the emergence and affordability of more stable and robust craft, an increase in the provision of Canoeing Ireland (the National Governing Body of canoeing in Ireland) approved training, and the emergence of hire, instruction and guiding providers at a local level. The growth in "soft adventure" tourism internationally has also created demand for canoeing amongst tourists who visit Ireland.



There are a significant number of non-club canoeists in Ireland who do not have access to the local and collective knowledge of canoeing clubs. These non-club canoeists tend to lack the club canoeist's access to information on the range, difficulty and logistics of various Irish waterways, and they may as a result avoid unfamiliar waterways.

1.3 Small Vessel Trail Attributes

When planning a Small Vessel trail the aim should be to ensure that the intended users of the trail have a safe and enjoyable recreational experience. It is important therefore to be aware of the types of users which the trail can support.

Land based trails can be designed to accommodate a range of user abilities through different gradients and trail surfaces, however water trails have limited design flexibility. Hence a small vessel trail which is exposed to strong tides or currents is not suitable for less experienced participants, and unlike a walking trail, there are no trail construction techniques which can alter the water's flow.

Small vessel trails are also changeable – in low water levels inland small vessel trails can offer a placid experience, but after heavy rain they can become faster moving and more challenging. Unlike walking trails where a walker can use the trail with little preparation, someone wishing to use a water trail will require some form of specialised equipment and prior training. Equipment and training requirements result in waterway trails having a higher proportion of guided group participation, versus the more typical self-led individuals or groups of friends seen on land trails.

The novelty, adventure and challenge of waterway trails strengthens their appeal amongst younger and more risk-positive participants. Anecdotal evidence indicates that water trail participants are in most cases children or young adults. However, it is important to note that these group and age profiles can vary – for example sea kayaking and snorkelling are often undertaken by small groups of adults.

1.4 Other Small Vessel Trail Opportunities

There are a number of watercourse trail types and activities which have proven to be popular and commercially viable in other countries. While Ireland does not have the same scale of rivers as in mainland Europe there are nevertheless opportunities to construct white water trails, and to provide commercial watercourse activities such as rafting, tubing and pay-as-you-go white water kayaking.

Rafting

Rafting has had limited development in Ireland. This is due mainly to the narrowness of the rivers, small watersheds (brief high river level periods), and the lack of river level control. In mainland Europe rafting represents a significant tourism industry, and it is made possible mainly due to predictable snow melt during the summer months.

Opportunities for commercial rafting exist in Ireland downstream of dams, which are typically operated by the ESB. The canoe/kayak and rafting trail at Canolfan Tryweryn in North Wales is an example of a profitable year round tourism and sports development business. This site has secured two hundred water releases a year from the dam upstream. As a result it is a focal point for commercial rafting operations and canoeing during the summer months, when individuals pay to be either guided or to have open access to the rapids at the site.

Rafting in Ireland will typically take place on Grade 2 to 3 water trails during the higher rainfall shoulder months (spring and autumn) of the tourism season.

Constructed White Water Courses/Rivers

Constructed White Water Courses were originally created for slalom canoe/kayaking competitions in the Olympics (at Augsburg in Germany for the 1972 Munich Olympics), but have since been developed both as training resources and as commercial tourism facilities for rafting and kayaking.

These rivers/courses are typically narrow channels constructed in concrete, with shapes and panels fixed in place so as to direct and control the flow of the water. The adjustment of these features and the river flow can alter the river grade, typically between Grade 2 to 4.

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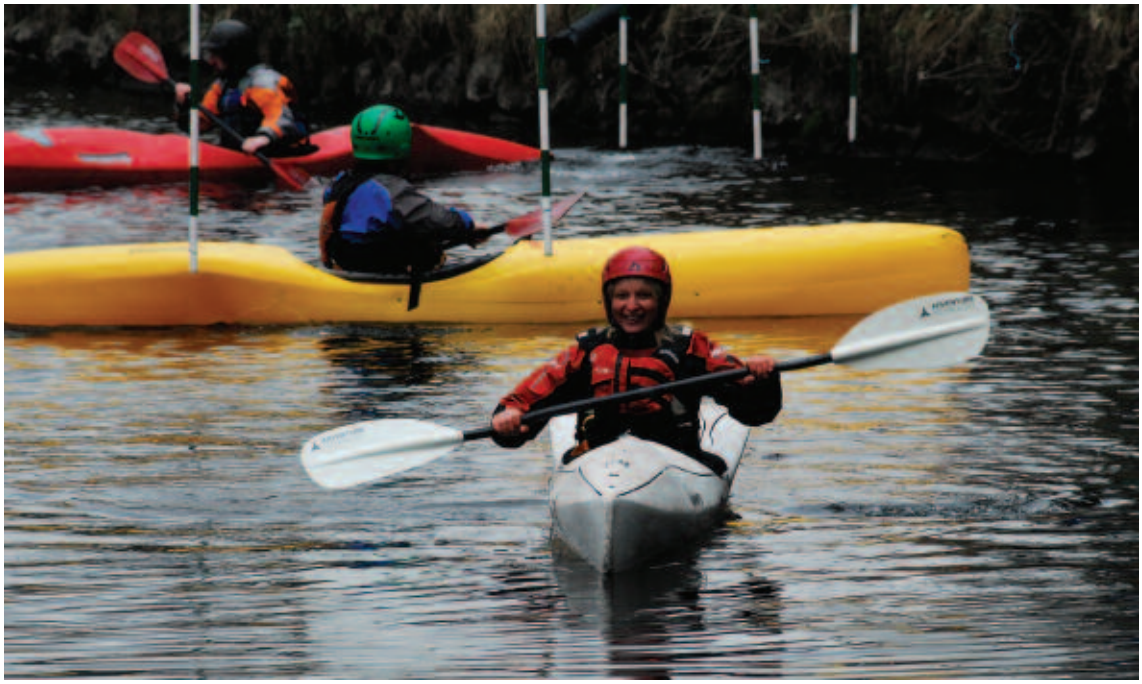


There are three types of constructed courses:

1. River Based Natural: typically on a large river with a defined gradient, where a channel is built to the side of the gradient (often above a large weir or dam) – for example Holme Pierepont in Nottingham. Alternatively the existing river can be used by modifying the banks and bed of the river so as to develop challenging obstacles. Rivers such as this will rely on an upstream means of regulating the flow, such as a sluice or dam – a good example of this type is Canoflan Tryweryn in Bala, North Wales.

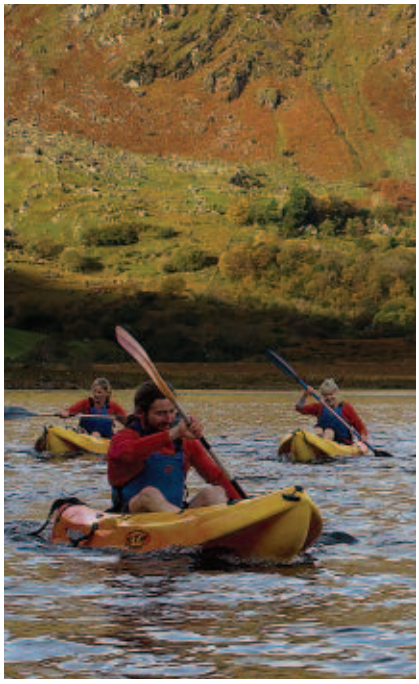
2. River Pumped: these require the pumping of water from a low point to the high point of an artificial channel. Such courses typically include a canoeing conveyor which brings the participant back to the start of the course without having to exit the canoe/kayak. Alternatively there is a lazy river type of course whereby the water is pumped at speed around a circular level course.

3. Tidal: situated at an estuary, the flow of the outgoing and incoming water is controlled and channelled around obstacles so as to create surface river features.

There are opportunities for artificial rivers at a number of locations in Ireland.

1.5 Case Studies - Small Vessel Water Trails

Lough Erne Canoe Trail, Co. Fermanagh, Northern Ireland



Managed by Waterways Ireland, Upper and Lower Lough Erne are linked by the slow flowing River Erne, and provide a 50km expanse of water that was developed as a canoe trail in 2005.

Sheltered Upper Lough Erne is a maze of bays, narrow channels of slow flowing water and innumerable islands and peninsulas – thus it provides the ideal setting for families or those embarking on their first canoe trip. Lower Lough Erne is a large body of open water with a rugged shoreline where waves can build during windy periods – features which provide somewhat of a challenge and make it better suited to experienced canoeists.

In 2012 a cottage was refurbished on Trannish Island to provide Bothy accommodation for canoeists.

www.CanoeNI.com

Great Glen Canoe Trail, Fort William to Inverness, Highlands, Scotland

The Great Glen Canoe Trail follows the 95 kilometres of the Caledonian Canal from Corpach (Fort William) in the West to Clachnaharry (Inverness) in the East. In an open canoe the Canoe Trail can comfortably be covered in approximately five days. If you are paddling a sea kayak you are likely to be able to complete the Canoe Trail in three to four days.

The trail brings paddlers on man-made canals, the open waters of Loch Lochy and Loch Ness, the slightly more sheltered waters of Loch Oich and Loch Dochfour, and also onto the Rivers Oich, Ness and Lochy. Approx 4,000 paddlers took on Scotland's first formal Canoe Trail in 2010.

http://greatglencanoetrail.info/

National White Water Centre, Bala, North Wales

The River Tryweryn in the heart of Snowdonia National Park is a true mountain river with fast flowing and exhilarating rapids. This is a dam-released river whose water level is controlled by an upstream dam, guaranteeing year round white water, whereas other rivers can sometimes suffer from low water levels in the summer months.

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On offer is a wide array of exciting white water activities to test the skill and nerve of all ages and abilities, from gentle taster sessions to full on rides. Activities include white water rafting, canoe and kayak experiences, canyoning, weekend adventure breaks and activity days for individuals or groups – be they corporate, school, youth, families, stag or hen. This centre is a pioneer of commercial white water rafting in the UK, it has hosted several canoeing world championships and remains the UK's favourite white water destination. Apart from the water sports, the surrounding villages and mountains of the National Park have much to offer the visitor.

www.ukrafting.co.uk

Island Bay Snorkel Trail, Taputeranga Marine Reserve, Wellington, New Zealand

The trail is situated in a 854 hectare Marine Reserve on the doorstep of New Zealand's capital city, Wellington. Lying in the confluence of three oceanic currents the reserve takes the full force of the southern ocean swells. These influences shape this exposed shoreline into a wide range of habitats and bring a rich mix of animals and plants together. This coastline has a great diversity of fish species and seaweeds and the trail provides easy access to study, interact with and record marine life and habitats.

Signage in the car park provides safety and marine life information. A supporting website provides articles and newsletters to help interpret the marine environment, and to tell you what features of note to look out for. It also allows you to check up on the current weather conditions for snorkelling. The trail is well-used and is most popular during the summer months. Some weekends up to 30 snorkelers and divers at any one time are either in the water, coming out, or getting ready to go in. Families with small children are regular users. All visitors come away from the snorkel trail talking about the sea life that they have seen below the waves.

www.taputeranga.org.nz

Water Trail Development Considerations

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2.1 Safety

The primary goal of all trail development agencies is to plan and develop water trails in suitable and appropriate water locations, ensuring that all safety issues are considered, and that the trail is designed and developed with the safety of the intended user in mind.

There is an element of risk associated with all forms of outdoor recreation, and it is the responsibility of the trail developer to ensure that trails are planned and developed in accordance with best practice and recognised standards, and are always maintained to that standard.

It is also the responsibility of the trail developer to ensure trail users are provided with all the necessary information about the trail to allow for informed decision making on the part of the user. This requires the trail developers to provide sufficient information and guidance to the trail user on trail grading and difficulty levels, distances and recommended skill levels required for the trail. Trail developers should also encourage and promote best practice in terms of safety for all trail users, where trail users are encouraged to prepare adequately for the activity they are undertaking, have all the necessary equipment required for the activity, and have the necessary information (contact details, emergency services, etc.) available to them to take action in the event of an accident or incident on the water. This information can be communicated through trail information map boards, at access points onto the trail, in trail guides and also on websites.

More information on Signage is available in Section 5.5.

Trail planners must also take due care when undertaking survey work on or near water, and are advised to:

- **always wear an appropriate personal flotation device**
- **not undertake survey work alone or during periods of adverse weather**
- **notify people about survey plans and expected return times**
- **always carry a fully charged mobile phone and ensure it is kept dry and secure**

Small vessel water trail development groups should consult with Water Safety Ireland and County Water Safety Development Officers on projects, and also seek assistance and advice in erecting public rescue equipment and signage as may be required

2.2 Strategic Planning

When planning a new trail development the developer should consider how the development compliments other tourism and recreation plans for the area. Where possible trails should cluster with other activity trails and resources, and augment existing tourism services such as accommodation, dining and transport.

If possible trail development should link in with local commercial interests in order to generate supporting trail services and drive an economic return – for example are there sports outfitters in the area who can extend their services to include trail guiding, craft hire and instruction?

For larger projects a regional, national or even international perspective should be taken.
It is also useful to liaise with potential trail users, local businesses, sports clubs and tourism contacts, as well as with other groups who have developed trails in the region, as much useful information and advice can be shared in this way.

Trail developers should consider the othe tourism development opportunities which trails bring – for example kayak and canoe touring is an important market segment in the U.S. and Canada, and kayak angling is also a small but growing market segment in Europe.

Introductory lessons, canoe rental[3], trail guiding and other services might be developed by local businesses, while nearby camp-sites, hostels and accommodation providers will secure additional guests if they offer appropriate services and make themselves visible and known to trail users.

2.3 Partnership Approach

Most trail developments require the input, guidance and support of a range of individuals and organisations, not just to develop, but also to maintain and promote the trail. It is for this reason that a partnership approach is recommended on all projects, whereby people are working together to ensure that a good quality and safe trail is developed. The trail developer should engage with all the relevant bodies, organisations and individuals as early as possible in the planning stage of the project, but also must stay engaged all throughout the process. A trail development plan which balances the various stakeholder interests is the ideal outcome from this partner engagement.

Planning and working in partnership ensures that everyone is onside and onboard from the start, and it also offers the possibility of increased resources, both in terms of funding and manpower. Partnership arrangements work best if there are clear agreements between the partners as to their respective roles and responsibilities in the project. It is recommended that all such arrangements and agreements between partners are documented from the outset.

[3] The rental of unguided or "bareboat" canoes and kayaks should include some form of test or training, in order that the operator can assure themselves that the trail user has a suitable level of competence. Contact Canoeing Ireland for further information (Telephone: 01 6251105, E-mail: office@canoe.ie).

2.0

2.4 Development Costs

Significant costs can arise when developing a trail. All trail development projects are unique and therefore the associated costs can vary significantly, even for trails of similar distance. The existing infrastructure (e.g. car parks, quays, etc.), the nature of the terrain (remote, easily accessible, etc.), and the scope and complexity of the project will all have a major impact on the costs.

If for example a small vessels trail is being developed on a section of canal using existing infrastructure, this is likely to be developed at a lower cost than a trail which requires newly constructed pontoons and slipways.

However care is required, especially with trails classified as "Defined" (see section 5.1), to ensure that the existing infrastructure is at an appropriate height for participant access and egress. Where changes to existing infrastructure are required significant costs can accrue, especially if this infrastructure is part of a protected or heritage structure.

The costs associated with trail development should be considered across three distinct areas:

1. Trail Planning Costs (Pre-Development): May include costs for undertaking feasibility and planning studies, environmental and heritage impact studies, etc.

2. Trail Development Costs (Building Stage): Would usually be the main cost area for a project, and would include any costs relating to installing infrastructure on the trail.

3. Maintenance and Management Costs (Post Development/Ongoing): Would include costs associated with carrying out the monitoring of the trail, also the annual trail maintenance and promotion costs.

2.5 Long Term Management & Maintenance Responsibilities

All trail developments will require ongoing maintenance to ensure they remain safe, continue to meet user expectations, and remain free from erosion, litter or other issues which may impact user experiences and the environment.

Maintenance will include infrastructure monitoring and maintenance, signage, way-marking and vegetation control. **Provision for the long term maintenance of a trail needs to be considered before a trail is developed, as the development agency will be responsible for the long term management and maintenance of the facility.**

When trails are well managed and maintained they are likely to attract consistent use, repeat visits and good publicity. To help ensure trails are well managed and maintained trail management standards have been published by the NTO. Focusing around a few key areas, these requirements have been grouped under the following headings:

- Information
- Route
- Trail management
- Way-marking
- Litter
- Services
- Trail surface
- Trail furniture
- Insurance

The requirements for all categories of trails are described in detail in the National Trails Office publication, 'Management Standards for Recreational Trails', available for download at: www.irishtrails.ie/National_Trails_Office/Publications

2.6 Funding and Funding Applications

The following agencies provide support and funding for trail development in Ireland:

- **Fáilte Ireland** (Irish Tourism Authority): Tourism development projects
- **Local Authorities:** County development projects
- **Local Development Companies:** Community projects (through Rural Development Programme funding and maintenance by Rural Social Schemes)
- **Shannon Development:** Shannon region
- **Department of Transport, Tourism & Sport:** Sports Capital Programme, Sustainable transport/travel projects

Funding programmes and schemes become available from time to time from the above agencies, so it is important that trail developers are aware of any potential funding opportunities, and are also keeping potential funding agencies fully up to date on their ideas and plans.

In order to secure funding a project would normally have to go through an application and evaluation process, whereby the merits and benefits of the project are examined. Funding applications would normally require certain basic financial requirements on the part of the applicant, such as up to date tax clearance certification and other terms and conditions.

A Guide to Planning and Developing
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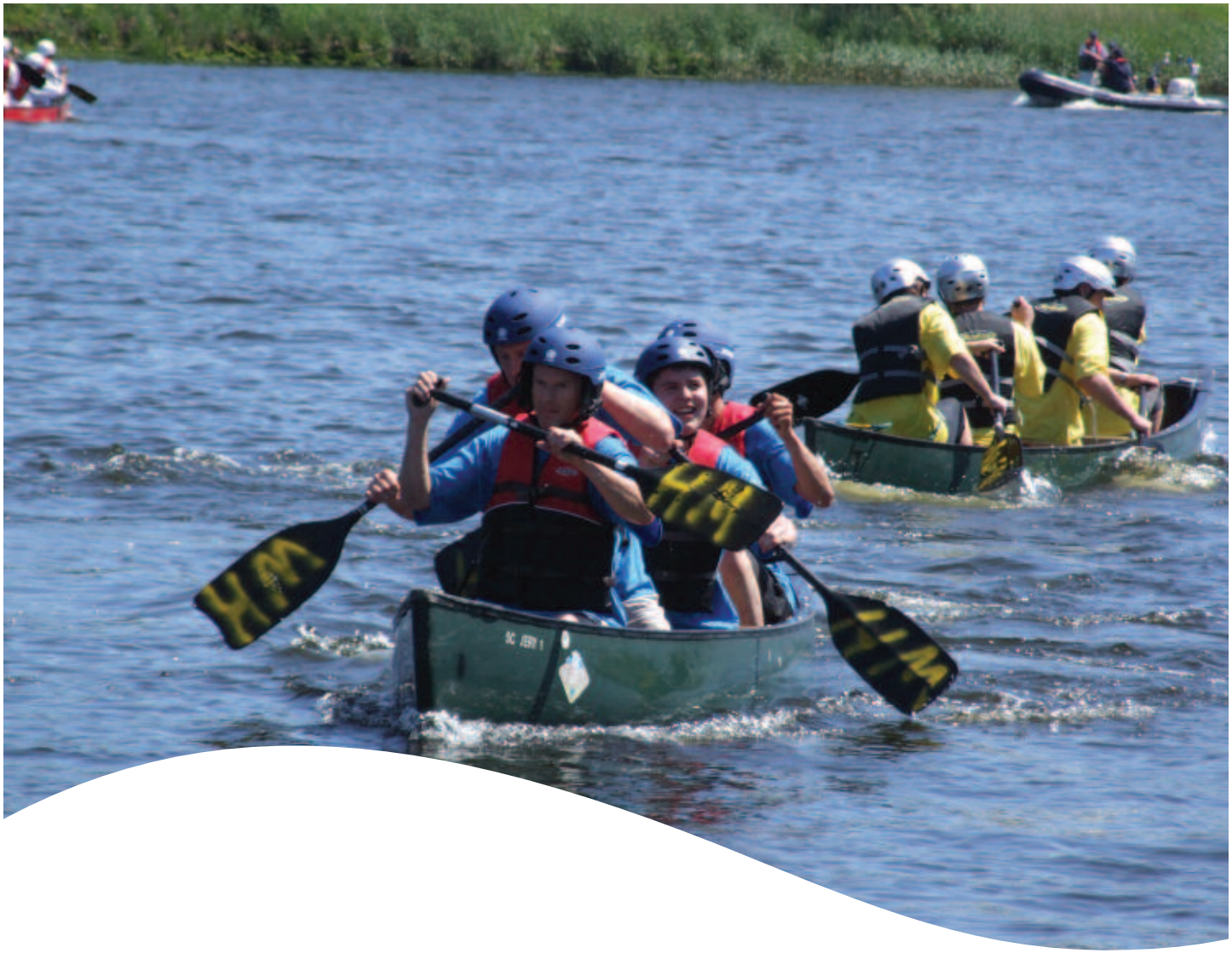
3.0 Water and Land Ownership Considerations



3.0

3.1 Ownership Rights to the navigation

There is no automatic right to the access or use of inland waterways in Ireland, and no assumptions should be made regarding a right to access or use a watercourse as a small vessel trail, without having first consulted with the relevant owners.

Rarely can someone actually own a watercourse – instead the riparian land, bed, soil, and fishing rights can all be owned – either collectively or separately by different parties.
A variety of private and state agencies (Harbour Boards, ESB) may control the access. Waterways Ireland owns the Grand, Royal and Barrow Line Canals, and both owns property, and manages the navigation, on the other waterways in its care.

Lakes which are not navigable are outside Waterways Ireland's remit and could be owned privately or by a State Body. Careful research is required to determine who the owner may be.

Riparian rights usually refer to the ownership rights of a waterway, and usually they belong to the land owners on each side of a river or water body. The right to fish on a river can be separate from these riparian rights, while the right to abstract water could also belong to a separate entity.

Coastal tidal waterways are not generally owned, with the exception of harbours and some estuaries where Harbour Masters and Harbour Boards have navigation and landing rights. However, **permission to access or egress water trails across private or public land must be secured.** It is important to note that the existence of a waterway access point, such as a pier or slip, does not imply access for all water users. Such water access infrastructure may have been developed for specific users, such as anglers, ferries or fishing craft, and as such the permission of their owners is often required.

Any construction of infrastructure for coastal or inland waterway trails may require planning permission and a foreshore licence from the Local Authority, the Department of Environment Community and Local Government (the Foreshore Amendment Act, 2011 transferred the functions from Minister for AFM to Minister for ECLG), or permission from Waterways Ireland to develop on its land.

Prior to any trail development actions, trail developers must first identify:

a. who has ownership of the water body
b. who owns the access
c. who is the managing authority (if a navigable waterway or a managed recreation facility)

The agreement of all the relevant owners and interests is required in order to develop and publicise a waterway trail.

Existing marked navigation channels on both inland and coastal waterways have priority over any supplemental waterway trail. Discussions with those responsible for existing navigation channels and infrastructure must also take place early on in the waterway trail development process.

3.2 Fishing Rights

Inland Fisheries Ireland (IFI) is the state agency responsible for the protection, management, and conservation of Ireland's inland fisheries and sea angling resources. Ireland has over 74,000 kilometres of rivers and streams, and 128,000 hectares of lakes – all of which fall under the jurisdiction of IFI.

IFI owns the fishing rights to a large number of fisheries in Ireland, but many are also privately owned. If a trail is planned along a fishery it is important to contact the fishery owner (if this is known) for their consent, as trail users could potentially disturb anglers fishing and the spawning beds.

To find out more about fishing rights please refer to the following website: www.fisheriesireland.ie/State-Fisheries/history-of-fishing-rights-in-ireland.html

Anywhere a fishery exists in freshwater there is a right to fish or a fishing right. This right is owned by someone – either a private individual, the State, or a group such as an angling club. Fishing rights entitle the owner, or those to whom the owner has given permission, to fish a stretch of water. As part of the stakeholder consultation process the fishing right owner must be identified and consulted with, in addition to angling clubs who fish in the area, prior to any trail development on a stretch of water. This is for two main reasons – safety, and the disturbance of fishing.

1. Trail users such as kayakers or canoeists can put themselves in danger if they pass too close to an angler's line and get entangled in it.
2. Angler's should not be hindered in or prevented from exercising their fishing right by a water trail user. Inappropriate actions by the water trail users – such as splashing, loud noise or passing too close to the angler or their lines – can scare off fish, and also undermine the angler's enjoyment of their activity.

For these reasons it is crucial to consult with the owner of the fishing rights in the area prior to trail development. For sea trails where fishing rights are public local sea angling clubs/service providers should be consulted. As the conditions on a river change with the seasons and weather a stretch of river won't always be attractive to trail users and anglers at the same time, and so conflict of use may not necessarily arise.

For sea trails where fishing rights are public local sea angling clubs/service providers should be consulted.

3.0

3.3 Landowner Consultation and Agreement

In all cases a trail can only be developed with the full consent of all the relevant landowners[4], fishing right owners and navigation authorities. These organisations and individuals should always be contacted about a proposed trail development at the very start of the planning process.

When a potential trail route has been identified the developer must establish who are the owners and stakeholders of the waterway, and the landowners of the access and egress points, and then consult with these stakeholders and owners at the earliest possible stage.

The best method of establishing who owns land is to speak to well informed residents, or to consult with the Local Authority and the Property Registration Authority (PRA) (www.landregistry.ie). You should be aware that just because land is not formally registered by the PRA, it does not follow that it is not owned by anyone, and a search of the registry of deeds may be required to determine ownership if local enquires fail to provide an answer. Identifying those with ownership, navigation, fishing or riparian rights can often be determined by enquiring with the adjacent landowners.

Consultation with a landowner or any of the other interests identified must take place, and agreement in principle to the use of the owner's property or navigation must be reached, before any potential trail route is designed or communicated to the general public. The announcement of a trail route before it has been agreed with the relevant land owners is a serious and sensitive issue, which may damage the future relationship with these stakeholders.

When consulting with landowners regarding access or egress points for a watercourse, the conditions of allowing permissive access should be outlined and discussed. Sometimes landowners fear that a right of way could be established if they allow the use of a route across their land for a trail – however there is no legal basis for this – and under no circumstances can the use of land for waterways access, or for a Small Vessel Trail, change the ownership status of that land.

When it has been agreed with all the waterway and land owner interests that a proposed trail development will proceed, it is then recommended that the agreement is documented and signed by all the relevant parties and the trail developer.

Water trail planners should consult with Inland Fisheries Ireland in relation to the development of a trail on any inland or inshore watercourse.

[4] While all land owners alongside the trail should be consulted out of courtesy, it is essential to consult with those landowners who have navigation rights, fishing rights, or water extraction rights, or who's land might be sought to be used for access and egress.

3.4 Permissive Access

The majority of land-based trail developments in Ireland are established on a "permissive" basis. This means that the landowner, whether private or public, gives permission for the trail to pass over the property. This "permissive basis" may be relevant to watercourse trails where access to and from the watercourse crosses private or public lands.

Permissive access does not infer that a route becomes a right of way – rather, it is a route that can be used by the public with the permission of the landowner, and where users must not damage the landowner's property or interests. A landowner has always a right to withdraw this permission should they so wish, subject to reasonable notice.

In summary a permissive trail differs from a public right of way, in that:

- No permanent right of way will be created.
- It can only be used in the way the owner has specified, and subject to any conditions he or she has agreed.
- Normally where public or private funding is utilised for the development of a trail, a minimum period (typically five years) for access is required.
- The owner retains the right to divert or close the trail if they so wish, subject to reasonable notice.

4.0 Environmental Considerations

4.1 Impact on National Heritage

Small Vessel trails can open up hitherto secluded areas – such as bird nesting zones, remote heritage sites or islands. It is important to minimise any impact that a trail development has on the environment, landscape or local heritage sites. To ensure that these impacts are minimized, trail developers must carefully consider the potential impact of the trail on all the heritage sites in the proposed development area.

National Heritage is defined as including the following:

- Monuments
- Archaeological objects
- Architectural heritage
- Flora and fauna
- Wildlife habitats
- Landscapes
- Seascapes
- Geology
- Inland waterways
- Rivers and lakes

Sites of environmental, archaeological and architectural significance are protected by law – works in these areas must receive permission from the appropriate bodies before commencement. If a proposed small vessel trail's portage, and access or egress, routes passes by or includes a heritage site, this will have implications for the trail development, and permission should be sought from the appropriate body at the initial trail planning stage.

4.2 Statutory Designations

Ireland's natural heritage is an integral part of our national inheritance, forming part of our sense of identity, while also providing resources of social, educational, recreational and aesthetic value.

The National Parks & Wildlife Service (NPWS) is responsible for the conservation of a range of ecosystems and populations of flora and fauna across Ireland. A particular responsibility of the NPWS is the designation and protection of Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Natural Heritage Areas (NHAs).

Activities in these areas must be notified to the National Parks and Wildlife Service. Certain activities which would impact negatively on the protected habitat are prohibited. An assessment of heritage will identify which sections of the proposed trail fall under these areas, if it is not already known.

Details of the location of all protected natural heritage sites can be found on the NPWS website: www.npws.ie/protectedsites

- **Natural Heritage Areas (NHAs)** are designated under the Wildlife Acts 1976 to 2010. NHAs are so designated because they are considered important for the habitats present, or they contain species of plants and animals whose habitat needs protection. There is a wide range of NHA's – raised bogs, blanket bogs, roosting sites for bats, woodlands, lakes, etc.

- **Special Areas of Conservation (SACs)** are designated under the EU Habitats Directive. These are the prime wildlife conservation areas in the country, and are considered to be important on a European as well as an Irish level. Most SACs are in the countryside, although a few sites do reach into town or city landscapes. SAC's include – raised/blanket bogs, turloughs, sand dunes, machairs, lakes, rivers, woodlands, estuaries, sea inlets, etc.

- **Special Protection Areas (SPAs)** are designated under the EU Birds Directive. Because birds migrate long distances it is not sufficient to protect them over just one part of their range, and hence the EU Birds Directive provides for a network of sites across all the Member States which protects birds at their areas of breeding, feeding, roosting and wintering. It also identifies species which are rare, in danger of extinction or vulnerable to changes in habitat, and which thus need protection.

- **Nature Reserves** are areas of importance for wildlife which are protected under Ministerial Order, in accordance with the Wildlife Acts 1976 to 2010. Most are owned by the State, however, some are owned by private landowners or organisations.

- **National Parks** are designated in accordance with the criteria set down by the International Union for the Conservation of Nature (IUCN). The purpose of National Parks is to conserve plants, animals and scenic landscapes which are both extensive and of national importance, and under conditions compatible with that purpose, to enable the public to visit and appreciate them. There are six National Parks in the country, and all of these are State owned and managed by the National Parks and Wildlife Service.

If a proposed trail development is passing through, or is adjacent to, any of the above designated areas, the NPWS must be consulted, and permission to proceed with the development must be sought from them. Depending on the nature of the proposed trail, and the designation of the area concerned, the NPWS may:

a. Authorise the development of a trail with no conditions
b. Authorise the development of a trail with specific conditions
c. Prohibit the development of a trail

The NPWS should be consulted as early as possible in the route planning stage. If a site is in a proposed Natural Heritage Area consent is not a legal requirement, but consultation is recommended.

4.3 Recorded Archaeological Sites

There are many archaeological sites dotted around the country. The Department of Arts, Heritage and the Gaeltacht is responsible for the protection of our archaeological heritage, including the licensing of archaeological excavations, in accordance with the *National Monuments Acts 1930 to 2004*. There are a number of categories of monuments under the *National Monuments Acts*:

1. National monuments in the ownership or guardianship of the Minister or a Local Authority, or national monuments which are subject to a preservation order.
2. Historic monuments or archaeological areas recorded in the *Register of Historic Monuments*.
3. Monuments or places recorded in the *Record of Monuments and Places*.

When anyone proposes to carry out any work at, or close to, a recorded Monument, they are required to give notice in writing to the National Monuments Service at least 2 months before commencing that work. This is to allow time to plan how the work may proceed in accordance with ensuring the protection of the monument.

Details on all designated archaeological sites are available on the *Archaeological Survey of Ireland's Sites and Monuments Database*, available at: www.archaeology.ie/ArchaeologicalSurveyofIreland/

4.4 Protected Structures

Small vessel trail portages and access and egress points may require the use, or the alteration, of protected structures, such as canal side quays.

Under the *Planning and Development Act 2000*, a protected structure is one which a planning authority considers to be of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social or technical point of view. The protected structures in each Local Authority Area are listed on the *'Register of Protected Structures' (RPS)*. The *'Register of Protected Structures'* is usually found as an appendix to *City or County Development Plans*.

Under planning legislation, any works that would materially affect the character of a protected structure would require planning permission. Certain works carried out in the vicinity of a protected structure – i.e. not only those carried out to the structure itself – may also be deemed to materially affect its character, and would therefore also require planning permission.

It is the role of the local planning authority to decide whether or not proposed works would materially affect the character of a protected structure. If it is obvious that the proposed works would materially affect the character of the structure in question it is best to apply for planning permission from the very outset.

Should there be uncertainty on this issue a 'Section 5' application may be submitted to the local planning authority. The local planning authority will then formally decide whether or not the proposed works would materially affect the character of the protected structure in question, and therefore whether or not planning permission is required.

Each protected structure and set of proposed works will be different, and thus will be determined on a case-by-case basis. In some instances – for example the fixing of a plate to a protected structure – the proposed works may be deemed to materially affect the protected structure's character.

It is strongly advised that the local planning authority be contacted in relation to all proposed works to protected structures – ideally in the form of a 'Section 5' application – in order to determine whether or not planning permission would be required.

4.5 Invasive Species, Spawning Streams, Weil's Disease

4.5.1 Invasive Species

Trail planners should make themselves familiar with the hazards of invasive species, and the potential for their spread/introduction to the trail planned. Transfer of equipment between water bodies, or the transfer from downstream to upstream within the same catchment, could have potential consequences for the spread of invasive species. With careful planning this can be avoided. The following precautions should be planned for on small vessel water trails:

- Signage raising awareness of invasive species should be considered at the trailhead end points. Inland Fisheries Ireland (IFI) have an invasive species smartphone app that assists water users to identify and report sightings of invasive species.

- Designated disinfection stations should be considered at appropriate locations at the trail's head and end to facilitate water trail users. This consists of a contained hard surface area, or suitable fixed hard-wearing container, for water users to dip/wash down equipment with suitable disinfectant. Consideration must be given to the safe disposal of disinfectant liquids after use.

- Small vessel users should be encouraged to wash their craft (interior and exterior) and personal equipment in fresh water prior to arriving at a watercourse.

- Simple disinfection kits can be purchased, and their use should be encouraged.

Further information on the topic of invasive species in Ireland can be obtained from *Invasive Species Ireland (www.invasivespeciesireland.com)* and from *Inland Fisheries Ireland (www.fisheriesireland.ie)*.

4.5.2 Spawning Streams

Fish tend to spawn in small streams with fast flowing water, and it is an offence to disturb spawning salmon or trout. As fish only spawn at certain times of year a seasonal trail may still be possible. Trail planners should consider this issue carefully if planning a trail in the vicinity of potential fish spawning grounds, and should consult with the relevant Inland Fisheries Ireland office for advice in this area.

4.5.3 Weil's disease

Leptospirosis/Weil's disease is a bacterial infection caused when bacteria carried in the urine of infected animals enters the blood stream. The bacteria can in rare cases be found on rivers, lakes and still water such as canals. Leptospirosis is very rare, and its deterioration into Weil's disease is even rarer. However, Weil's disease is a very serious illness, and must be swiftly diagnosed and treated. Leptospirosis is not a risk for coastal trails as the bacteria cannot live in salt water.

Hepatitus A is a viral infection of the liver that is caused by swallowing water contaminated with the virus.

Water trail planners should be aware of these health issues, and must notify trail users about the risk, and also the action that must be taken if symptoms present.

4.5 Other Permissions and Permits Required

Trail developments may require a number of other permissions from State Agencies, depending on the type and location of the development.

Inland Fisheries Ireland

Where any trail development works are proposed alongside, or close to, a river, lake or watercourse, consultation should take place with Inland Fisheries Ireland (IFI). A new slipway, quay or canoe step at a watercourse should also be discussed with IFI, who can advise on precautions to be taken to prevent any discharges of silt or soil.

Coastal Permissions

Trail developers are strongly encouraged to use existing water access and egress facilities and natural resources. Only in exceptional circumstances should additional coastal waterway access or egress infrastructure be developed. In such an event, a foreshore licence may be required if any form of construction takes place at or below the high tide limit of a coast, or a tidal section of a river. Further information on foreshore licences and leases can be sourced from the *Department of the Environment, Community and Local Government*, at: *http://www.environ.ie/en/Foreshore/FAQs/*

Planning Permission - Car Parks and Buildings

Planning permission is typically required for the construction of a new car park, or a building such as a toilet/shower block. However slipways, canoe steps and quays are also likely to require planning permission. Early consultation with the planning section of the relevant local authority is recommended where any doubt exists about planning requirements.

Early and thorough consultation with the relevant grantees of permission will ensure that costly trail planning and design work is not derailed at a later stage of the project.

5.0 Trail Planning and Design Considerations

When planning a new trail the developer must build up a clear picture of the following:

- **Topography, landscape characteristics, ground conditions of the access, egress and portage elements of the trail**
- **Water flows which may make the trail difficult, especially at the access and egress points**
- **Unmapped obstacles such as low bridges, pipes, fallen trees, bank slides, etc.**
- **Areas that are unsuitable for emergency egress, due to high banks or dense bank vegetation**
- **Different habitats within the site, including any protected areas or designations**
- **Heritage sites, or other important features on the site**
- **Existing road or path infrastructure which can provide alternative access and egress**
- **Access points, car park areas, etc.**
- **All positive and negative features on the site**
- **Any safety issues on site that may impact the trail at different water levels and water flows**
- **All existing activities that are carried out on the site - e.g. farming activities, other watercraft, angling, water extraction, power generation (mill races, hydro-electricity generation)**

All of this information is compiled through a combination of site surveys and consultations with various individuals and organisations, it will all ultimately go towards helping to inform the trail plan.

The following guidelines should be observed when undertaking trail survey work:

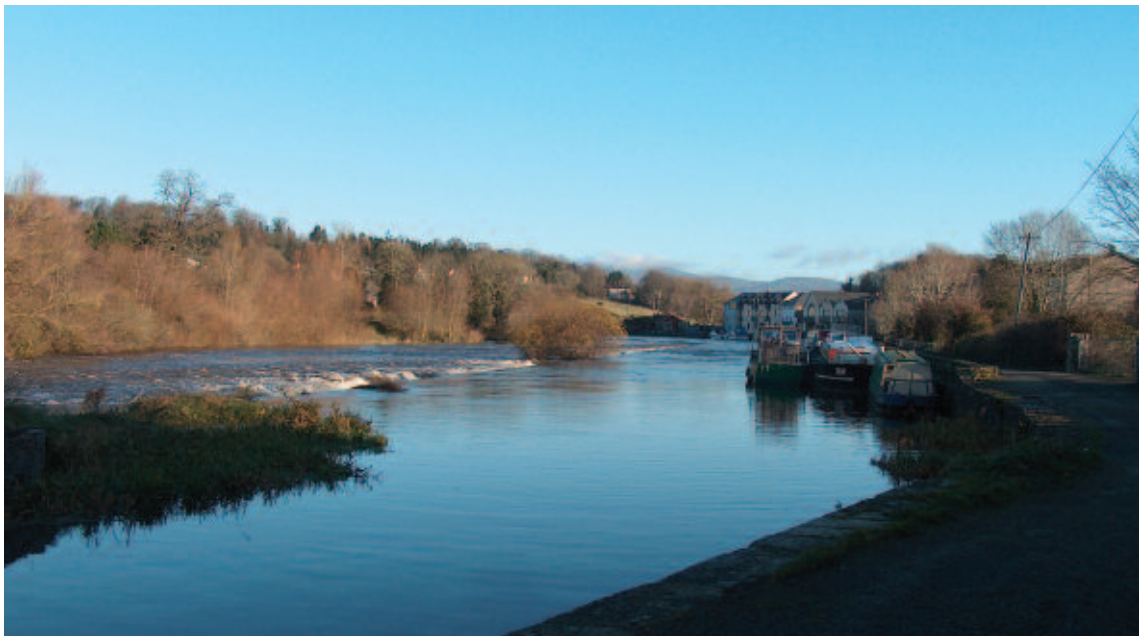
1. **Site survey work should be carried out with the full consent of all landowners**
2. **Trail planners and developers should not enter a site to undertake survey work without prior permission from the appropriate person or body responsible for the site**
3. **If surveying in a remote or potentially hazardous area, it is recommended that a person does not work alone – for safety reasons. If you must work alone, you should carry a charged mobile phone, and leave details of your plans and expected return time with a responsible person**
4. **Any on-the-water work must be undertaken by groups of at least three people – ideally with a minimum of two water craft, or with one person on the bank**

5.1 Trail Classification and Grading System

A Trail Classification system provides a means of classifying a trail based on its level of supporting infrastructure provision, whereas a trail grading system indicates the level of technical difficulty encountered on the trail, or the level of skill required in order to complete the trail.

There are two trail classifications:
(1) Defined Trails
(2) Wilderness Trails

Defined Trails	Status
Access & Egress	• Watercourse access and egress facilities are in place, and are at an appropriate height above normal water levels for the easy entry and exit of water craft
Portaging	• Portages are minimised, clearly marked and have defined passages
Trailhead	• Dedicated parking, and craft loading and unloading space, is provided close to the watercourse entry and egress points
Signage	• Signage to the trail head is provided leading from the main road to the trail head • Route and hazard signage is provided, on the watercourse
Camping	• Multi-day trails have appropriately located commercial or wilderness camping sites identified
Information	• Watercourse maps, and local heritage and supporting services information (accommodation, dining, transport, etc.) are provided in supporting information, both on-site and off-site – e.g. map boards, brochures, website



Wilderness Trails	Status
Access & Egress	• Watercourse access and egress facilities are in place – however, these may be improvised and not at the optimum heights with respect to normal water levels – and they may as a result be more difficult for water craft entering and exiting
Portaging	• Portages are minimised and clearly indicated, but they do not necessarily have defined trail surfaces
Trailhead	• Parking and craft loading and unloading space is indicated, but this space may be limited, or at a distance from the waterway access point
Signage	• Signage to the trail head is provided, leading from the main road to the trail head • Route and hazard signage is provided on the watercourse
Camping	• Multi-day trails have appropriately located commercial or wilderness camping sites identified
Information	• Watercourse maps, and local heritage and supporting services information (accommodation, dining, transport, etc.) are provided in supporting information, both on-site and off-site – e.g. map boards, brochures, website

5.1.2 Trail Grades

Inland watercourses are typically graded according to the speed and volume of the water, the gradient of the river bed, and any watercourse obstacles present. The following is an outline of the internationally recognised river grading system:

- **Grade I - Easy**
  - Fast water with ripples or waves
  - All dangers are obvious, negligible risk to swimmers, easy self-rescue

- **Grade II - Novice**
  - Straightforward rapids with regular waves
  - Easy to medium drop-offs (chutes, ledges, falls)
  - Eddies and shear zones are easily negotiated
  - Best passage evident without scouting

- **Grade III - Intermediate**
  - Rapids with moderate or irregular waves, breakers, rollers, back eddies
  - Scouting in advance is advised for inexperienced parties

- **Grade IV - Advanced**
  - High or irregular waves, breakers, powerful back eddies, whirlpools, sharp bends
  - Powerful but predictable rapids requiring precise handling in difficult water - For experienced paddlers only!
  - "Must-make-moves", rapids that require skill

- **Class V - Expert**
  - Extremely long and/or violent rapids, often containing large or unavoidable obstacles, holes, steep banks, turbulent water, very fast currents, powerful whirlpools
  - Rescue is often difficult, even for experts, advance scouting may be difficult

- **Class VI - Extreme**
  - Upper limit of present-day skills and equipment – Only for teams of experts!
  - Unexplored or uncharted rapids, navigation may be very difficult to impossible
  - Luck often considered an important part of a successful negotiation

The majority of inland water trail users seek Grade 1 type watercourses, as they offer a low risk environment, and are typically easy to access and egress. Grade 2 rivers are also popular, while some Grade 1 rivers will change to Grade 2 during high river levels – for example the river Shannon between Battlebridge lock and Carrick-on-Shannon develops a number of small rapids during high water levels.

Grade 3 rivers are also popular as waterway trails, as these tend to have acceptable levels of risk for intermediate to advanced participants. The river Barrow is an example of a trail which offers Grade 1 to 3 opportunities. The placid water and canal sections of the river are typically Grade 1, while the alongside weirs and rapids are Grade 2 or Grade 3, depending on water levels. It is worth noting that a number of outdoor education and adventure centres successfully use these weirs and rapids on the river Barrow for introductory canoeing courses.

Most trails at Grade 4 and Grade 5 are identified in river guidebooks rather than signposted on the ground, and as such they are paper-based trails. Participants at this level are very experienced, and only require information on access, egress, exceptional conditions on the river such as fallen trees, impassable weirs and waterfalls, and any restrictions due to angling, etc. Where these higher grade rivers are used regularly for recreation, on-river signage is typically used to identify specific dangers, such as impassable weirs or dams. Land-side signage on these higher grade rivers is used sparingly, so as to avoid promoting the trail inappropriately to inexperienced participants.

5.1.3 Coastal Trail Grading

Given the considerable change which can occur on the sea, due to variations in wind and stages of the tide, it is difficult to grade coastal trails as succinctly as is the case for the Grades 1 to 6 on inland waterways. Hence, while coastal trail users should be made aware of the key hazards on the trail, they must themselves take responsibility for their own preparedness, and the suitability of the trail. Trail Developers must also avoid the promotion of trails where there is significant risk involved. While coastal trails can have some of the following features – (tidal races or overfalls at specific stages of the tide, extended sections of the trail with no landing points)– these should not be frequent or extreme. Public information material on the trail, in addition to identifying access, egress and shore facilities, should also indicate any significant hazards (e.g. overfalls, surf or tidal races, large swell conditions, etc.). Participants are also expected to carry a relevant portion of a sea chart for the area.

The following trail features should also be taken into account when developing a coastal trail:

- Participants should through formal and informal access and egress points have reasonable egress from the water in an emergency, or during an unexpected change in conditions
- Formal trail access and egress points must be useable at all stages in the tide, and should allow for short introductory trips, as well as for the full trail experience
- Busy navigation channels should be avoided – for example crossing the entrances to busy commercial ports

Coastal trails are not considered suitable for craft which are difficult to navigate in wind, such as open canoes or inflatable craft. Hence promotional material for these trails should highlight the unsuitability of these types of craft.

5.1.4 Snorkelling Trail Grades

The following are guidelines regarding the potential grading of a snorkelling trail:

- Grade 1 – Less than 1km, >2m, no currents (beginner)
- Grade 2 – Less than 3km, >5m, some tidal movement (intermediate)
- Grade 3 – More than 3km, >10m, tidal currents (advanced)

5.2 Water and Wind Considerations

Trail developers must always consider the effects of wind, and a rise in water levels, when planning and promoting water based trails. During trail surveying and planning work the trail should be visited during periods of both good and bad weather. This is so the trail developer can identify any weather related safety hazards.

5.2.1 Water Levels and Flow

Significant rainfall raises the height of a watercourse, and increases the speed of water flows on rivers. Significant river height and flow increases create a more challenging trail experience for the users, floods access and egress points, increases the flotsam on the trail, and the risk of strainers as more water flows through overhanging trees. Where appropriate, an upper water level (beyond which the trail is deemed too difficult to use) should be indicated by the presence of indicator signs at trailheads. Similar information should also be identified for locations where high winds can undermine safety (e.g. offshore winds, wind against the tide).

These upper level indicators are particularly important on river based trails.

Given the variability of water levels on a river (water heights are more static on controlled waterways such as canals and dam controlled lakes), access and egress points should accommodate variations in water heights. Hence the use of slipways, canoe steps and floating pontoons is encouraged where there are likely to be significant variations in water heights.

Conversely, low water levels (due to the absence of rainfall or low tides) may make the watercourse impassable at the trail entry point or downstream. Indicators and guidance relating to very low water levels should also be provided for the trail user where appropriate.

5.2.2 Tides

Tides also alter the characteristics of the coastal or estuary waterway, in that they generate a flow of water, the speed of which varies according to the lunar phase, and the hour of the tide within the six hour tide cycle.

Tidal flows alter the physical characteristics of a coastal waterway trail, and also the direction in which the trail might be used. Coastal trail participants will typically travel with the tide, and only in low tidal streams or slack tides will they travel against it. Hence, while the start and end point of a river trail is defined by the flow of the water course, the start and end points of coastal trails will vary according to the direction of the tide at the time of trail use.

Specific challenges caused by the tide (such as tidal streams, eddies and overfalls), as well as the local High Water times and their relationship to the nearest tide table reference port, should be indicated on the coastal trail support information.

5.2.3 Wind

Wind alters the surface of the water trail by generating waves, and it can also directly impact upon the movement and balance of a trail user on the water. Water trail users travelling into the wind can be delayed or prevented from making a forward passage, or with a beam wind (a wind across the side of the craft) the trail user can be repeatedly moved off course. The combination of wind, air temperature, and spray from the water can significantly increase the cooling effect on the participant, and in extreme cases this can lead to hypothermia, even in the absence of immersion in the water. The safety, enjoyment, and route achievability of the participant can be undermined by the presence of wind, especially in combination with the cold, and high water levels and flows. While the participant is ultimately responsible for the safe preparation of their trail journey, areas known to have significant negative wind effects (such as shallow banks, wind channelling, clapotis, exposure to prevailing wind and so on) should be identified briefly on trailhead information material. An excerpt of a sea chart for the area should ideally be included on the trailhead map board.

While the trail user must take personal responsibility for their decisions during periods of high wind, or high water flow and tides, the trail developer must provide sufficient information regarding any exceptional or specific weather risks associated with the trail. It may also be necessary for the trail manager to apply restricted use policies for the waterway in extreme weather conditions. Such information and guidelines should be kept to a minimum, and be provided at trailheads and on all related trail information and publicity materials.

5.2.4 Watercourse Features

Weirs, waterfalls, dams, sluice gates, locks, marinas, rocks, navigation markers, immersed trees, low bridges and moorings are some of the natural and man made on-water features which can impact on participant safety. The flow of water onto and around these features poses the main risk for participant safety.

The potential impact of these features on the safety of the trail participant should be evaluated, using the following perspectives:

Pinning and Trapping:
Is the flow of water onto a fixed object in the water course likely to pin a water craft or swimmer onto the object? (e.g. a semi-submerged tree in the main flow of a channel.)

Channelling:
Does the presence of a fixed feature channel the water in such a way as to create unexpected turbulence, or push the participant towards a potential pinning? – (e.g. the channelling of water between moored boats.)

Submerging:
Will the angle and flow of water be powerful enough to submerge a participant, either temporarily or for an extended period? – (e.g. in poorly designed weirs with closed hydraulic jumps/stoppers.)

Drops:
Is it likely that the participant and their craft could inadvertently drop over a feature, such as a weir or waterfall? Is the passage of a participant and their craft over a drop likely to endanger them? – (e.g. by falling onto a shallow rock strewn area at the base of a weir.)

In order to consider and act on these safety issues, the trail developer should take into account the target participants, the intended grade of the trail, possible remedial works, and signage or trail user information which will sufficiently reduce the risk posed by these features.

Higher grade trails (such as Grade 3) will ordinarily have increased risks of submerging, trapping, channelling and submersion, while Grade 1 trails should have none of these features. The participant on a higher grade trail is also expected to have a higher level of competence, and hence be more capable of navigating these risks.

5.3 Trail Length, Access and Egress, Travel Distances

The following information relating to trail length and access has been developed with reference to the canoeist and kayaker, who are likely to be the most frequent users of these small vessel trails.

There is no recommended overall length for a trail, as individuals are free to access the trail at any point and complete which ever section they choose. Hence longer small vessel trails (of over 20 kilometres) are often completed in sections rather than in their entirety. In order to facilitate this section approach access and egress points on the trail should be frequent. Access and egress points refer to formally identified locations where there is appropriate supporting infrastructure for parking, and for the participant to enter or leave the trail. The infrastructure standards for these access and egress points is largely determined by the classification of the trail (i.e. Defined or Wilderness – see Section 5.1).

Access and egress points can take a number of forms: (quays, slipways, beaches, grass banks, marina pontoons, etc.) These locations should only be recommended if they do not pose a risk to the trail participant, or other waterway users. For example, busy fishing or commercial ports should be considered carefully before they are recommended, as marine traffic may pose a risk to the less visible trail user.

In addition to formal access and egress points, informal acceptable landing stages can also assist the exit of the trail user in the event of an emergency, or a sudden change of plans. Acceptable landing stages include beaches and harbours, and other trail infrastructure locations which are not of a sufficient standard to merit being identified as formal access or egress points, but which might be used "once-off".

The presence of these informal landing stages might be indicated on supporting map material, but they should not be identified as an access or egress point.

As a general rule, individual access and egress opportunities should be a maximum of five kilometres apart from each other, as this distance is achievable for most participants. Some trails may require longer distances between access and egress points, and in these cases there should be either informal acceptable landing stages within the five kilometre range, or a notice on the trail material which indicates this exceptional distance between the access and egress points.

The trail developer must be particularly aware of the challenges posed to the trail participant on exposed coastal trails, and on large open lakes. In these locations offshore winds can pose an additional risk to the participant, and hence egress opportunities (whether formal or informal) should be more frequently spaced than at every five kilometres.

Trail participants have personal responsibility to undertake only the elements of the trail which are within their own ability, or appropriate for the weather and time available, and with equipment which is suitable for the task. Trail participants who fail to make adequate preparations may in exceptional cases have to adapt their route to include a "cross-country" exit from the trail.

Travel Distances

The following canoe and kayak distances and speeds are provided as a reference for typical small vessel day or half-day travel distances.

	Trail Type	Comment
Average Travel Speeds	• Lake and flat water touring: 2 – 5 kilometres per hour. Half day trail: between 3 and 10 kilometres. • Coastal: 2 – 5 kilometres per hour. Half day trail: between 3 and 12 kilometres, depending on tidal stream. • River: depends significantly on river speed. Assume lake speed plus water flow rate. Half day trail: between 2 and 13 kilometres.	• The speeds alongside are to assist the trail developer in deciding on appropriate access and egress points, and also half and full-day trip distances on a small vessel trail. • Note participant speeds are also influenced by the level of difficulty. Small groups will typically go one at a time down a rapid or weir and wait for each other, they may also "play" on the rapid or have to recover capsized craft.
Average Travel Distances between access and egress points	• Lake and flat water touring (maximum distances between access, egress, or rest points): 5 kilometres. • Coastal: maximum 5 kilometres to an accessible landing point. • River: 3 to 10 kilometres between access and egress points, depending on river flow.	• The distance that can reasonably be travelled depends on a range of variables, such as: wind direction, flow strength, trail difficulty, craft laden weight, craft type and participant competence. • The recommendations alongside are reference rather than required distances. Both the trail designer and the participant have to make informed judgements on what is realistic.

5.4 Route, Technical Standards, Trailhead, Supporting Services

5.4.1 Trail Route

As a watercourse trail route is largely predefined route design can be limited. However, with lake or coastal trails there may be the options of passages to islands, cutting across or following the inside line of bays and so on. Do not however create unnecessary distance - if you bring the trail inside a small bay, if at all possible, identify a feature within the bay which makes this longer route worthwhile.

It is sometimes possible to provide a looped trail. In addition to removing the need for separate access and egress infrastructure, a loop also adds value to the trail and avoids the need for a shuttle. Looped trails are more readily developed on lakes and coastal areas through the use of bays, islands, etc. In some cases loops are possible on rivers and canals, for example:

- The Camlin river in County Longford can be used to travel from Clondra onto the river Shannon. Below Termonbarry (County Roscommon) on the Shannon a lock can be used to travel directly back to the start point at the village of Clondra.

- The river Barrow at Clashganny is popular for both beginners and experienced kayakers and canoeists. A passage downstream from Clasganny across two weirs and a small rapid is possible for kayaks and canoes. These craft can then travel back upstream to the start point at Clashganny via the Barrow Canal alongside.

Using existing infrastructure such as waterside car parks as trailheads can reduce the costs of establishing a trail, and may also bring the trail directly to its host community. This use of existing infrastructure may result in creating new and non-traditional access and egress points. Any extension or compression of the trail journey should be evaluated with reference to the target user, and the additional time, effort and quality changes these alterations may bring.

5.4.2 Technical Standards

Detailed specifications for trail infrastructure and design are provided in Appendix 4, the following are supplementary guidance notes. Unlike most other recreational trails, the surface of a small vessel trail is rarely an issue, except where modifications to the bed of the waterway are required in order to calm or stimulate water flow and shape. Typically the access and egress infrastructure poses the main trail development challenge, and the main area of trail development expense.

- The access, egress and portaging facilities of proposed small vessel trails should ideally accommodate the higher expectations and greater needs of the entry level participant, and must not exceed the capacity of the more experienced participant. Infrastructure recommendations for the trail (as outlined in Appendix 4) range from the "ideal" to the "acceptable", rather than there being a single definitive standard. For example, formal egress and access heights should ideally be circa 300 mm above water level, but never exceed 700 mm (See Appendix 4).

- While the trail infrastructure provided will when possible facilitate group access and egress, this group infrastructure will not be possible at all locations due to issues of appropriateness, space, expense and impracticality.

- Portaging around obstacles is more problematic with open canoes (and especially for younger participants) due to the greater size and weight of open canoe/kayaks. Portage lengths should be kept as short as possible, and a "dragable" surface provided for the canoe/kayak – such as grass, wood or specific canoe slides.

- Existing in-situ facilities will when possible be used to facilitate the trail. This is preferential to constructing additional new infrastructure – e.g. map-boards, landing stages, etc.

5.4.3 Trailhead Location and Design

Another consideration when planning a trail route is where to locate the trailhead, which is typically sited at the start of the trail. Generally the trailhead needs to be somewhere suitable for users to park a vehicle. Depending on the expected popularity of the trail, and types, of trail users, parking requirements may range from space for a few cars to sufficient space for minibuses and boat trailers. Do not forget to ensure that there is sufficient space for minibus and trailer turning.

Given that water trails are often used by groups of 5 to 15 people (such as school groups, canoe clubs, day trips, etc.), access and egress trailheads may need to be able to accommodate the large minibus and trailer typically used by such groups and commercial providers. Height barriers at the entrance to car parks results in the off-site parking of these vehicles and trailers, with the resulting potential restriction of traffic on nearby roads. Where the trailhead car park cannot be accessed by vehicles the craft must be manually transported to the water's edge – this is a particular problem for young children, and can also undermine the overall trail experience.

- Access to and from the water will typically be required by a group of participants at the same time – thus bankside trail access space at popular trailheads should be maximised to allow for multiple entry and egress.
- While also recommended for access points, some form of sheltered changing area is of benefit at the egress as participants may be wet by the end of their watercourse trip. A simple cornered wall can provide shelter from the wind, and also privacy during changing, and should be considered as a necessary feature for busy trailheads.
- Freshwater hose-down facilities are advised at coastal trailheads in order to remove salt from canoe/kayaks and personal equipment.
- A vital piece of infrastructure at all trailhead locations will be the trail information board, which provides all the essential information to the trail user. Trail developers should refer to: *'Management Standards for Recreational Trails'*, available for download at: *www.irishtrails.ie/National_Trails_Office/Publications/Trail_Development/*

5.5 Signage

While it is important to keep signage to a minimum on the trail, there are on-water, to-trail and supporting trail signage issues which should be considered. This section is further supported by additional information in *Appendix 2: Signage Specifications*.

5.5.1 On-Water Signage

Signage on the watercourse - on-water signage - should be used to advise the participant of any exceptional or especially hazardous watercourse features. Mixed grade trails should also sign/indicate the different grade routes – for example, indicating the Grade 1 trail route along the canal section, and the alternative Grade 2 to 3 routes over the weirs and rapids on the River Barrow.

A number of water-trail users (such as kayakers) have a very low eye line – usually less than three feet above the waterline. This limits a trail user's horizon, especially as they approach falls such as weirs, rapids and waterfalls. Permanent dangerous and unexpected obstructions at these sites should be well signalled in advance, as the flow of water can wash the participant towards them before they have had the opportunity to identify the hazard and then react to it. However this form of obstruction is typically very rare, and appropriate judgement and care is required in order to prevent the trail experience from being degraded through the overuse of signage.

Warning signs should only be used in exceptional cases, and map boards, promotional material and websites can be used to identify the more regular hazards (such as navigable weirs and rapids) on the water course.

In order to undertake these safety appraisals the trail developer should be assisted by someone with small vessel experience. This is especially the case for a moving water or coastal trail.

The trail developer, in providing supporting information for the trail user regarding difficulty, must strike a balance between providing sufficient information for the user to make reasonable decisions, but not attempt to cover every eventuality. Decisions regarding the provision of supporting information for trail users should consider both the grade of the trail and the competence of the likely trail users. This is a particular issue for sea canoeing, where the variables of tide, wind and land features can result in a wide variety of trail features.

The following visual symbols are recommended for use on water trails developments in Ireland to indicate the trail technical difficulty under normal conditions[5]:

GRADE	DIFFICULTY	COLOUR
Grade 1	Easy	Green
Grade 2	Moderate	Orange
Grade 3	Challenging	Red

The distance to the next realistic egress point on the trail should also be indicated in the information signage provided on the map-boards and all other supporting material.

[5] Wind, and increased water levels and flow, can transform a Grade 1 (Easy Water Trail) into a Grade 3 (Challenging Water Trail). Trail users should be notified of this, and must be encouraged to check the water conditions the trail before setting off.

5.5.2 Trailhead Signage

At the trailhead the following map board content is recommended:

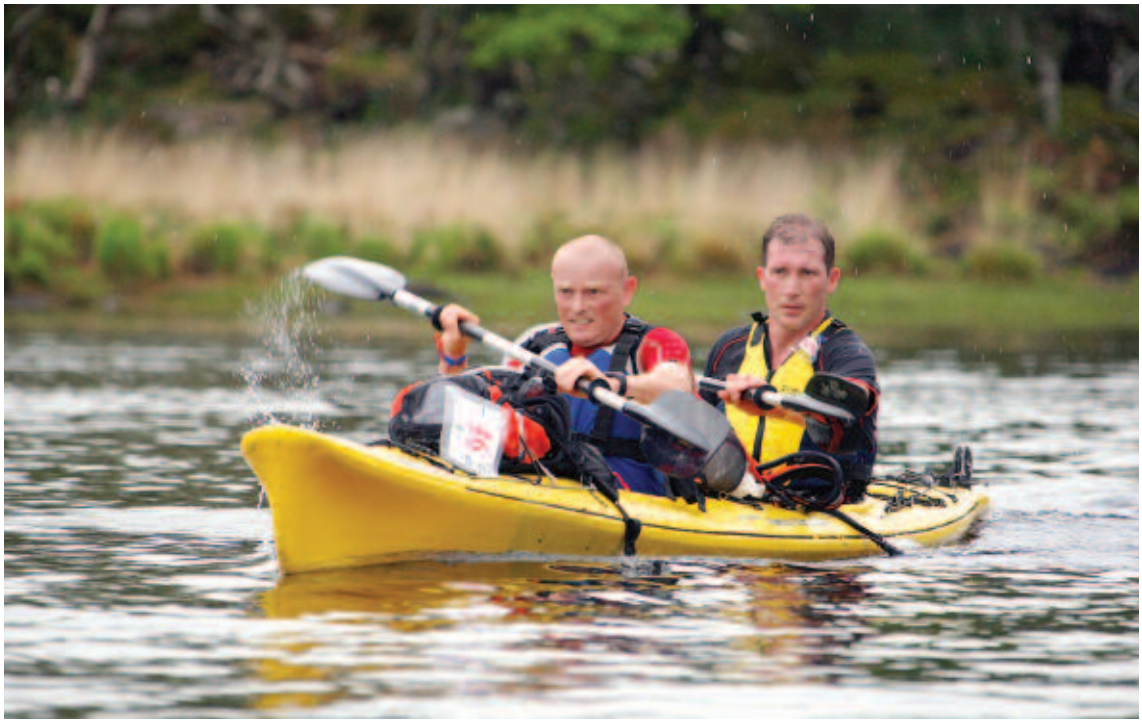
- The name of the trailhead
- A simple uncluttered outline map of the area, with the entire trail and trailheads included
- Trail hazards should be identified on the map
- A distance and average trail timescale
- Information on any significant wind or tidal effects should be supplied, but sparingly
- For larger trails an exploded section of the nearby trail should be identified
- Symbols and a key should be used to identify the resources/services at each trailhead
- Information regarding restricted access areas, or restricted seasons
- A simple code of conduct, and an outline of Leave No Trace principles
- Contact details for nearby service providers (e.g. transport, accommodation, dining, shops, etc.) might be provided, either on the map board or adjacent to it
- Brief descriptive information on the nearby heritage and scenery

The map board's design, colour scheme and use of logos should be according to a suitable specification and brand, and it should be consistent across all the trail's promotional and information materials.

The "Leave No Trace" principles should be linked to trail use, and should be highlighted on publicity material at trailheads and associated sites, so that the participants are encouraged to take responsibility for the preparation, planning and impact of their activity while on the trail.

5.5.3 To-Trail Signage

Directional finger post signs, which use the international canoe trail symbol (see Appendix 2), should be used to indicate the trail's location and lead from the main road to the trailheads.



5.6 Snorkelling Trail Guidelines

The following are suggested criteria for a coastal snorkel trail, as provided by Comhairle Fo-Thuinn (CFT), also known as the Irish Underwater Council. These guidelines assist in the promotion of snorkelling trails amongst all participants, and in particular family groups, including those who meet CFT's Snorkel Fundamentals grade (age and ability).

These guidelines assume that best use will be made of existing infrastructure, rather than incurring significant expense in new-build or costly investment.

Snorkelling Trail Grades

The following are guidelines regarding the potential grading of a snorkelling trail:

- Grade One – Less than 1km, >2m, no currents (Beginner)
- Grade Two - Less than 3km, >5m, some tidal movement (Intermediate)
- Grade Three – More than 3km, >10m, tidal currents (Advanced)

Access and Egress

- Entry and exit to and from the water should be possible at all stages of the tide, either via steps, a slip or across a beach.
- Entry and exit to and from the water should also be possible at all stages of water flow conditions for river or lake snorkels.
- Avoid using entry and exit points that pass over seaweed covered rocks.
- If a working pier is being used, entry and exit should be well away from the working area of the pier or harbour.

Design and Length

- Because snorkelling attracts mixed age groups, ensure that the trail is suitable for all levels of experience in the first instance, or if possible identify shorter routes for those less experienced.
- Ideally the trail should be circular – thus avoiding long walks in wetsuits. However linear "out-and-back" trails, such as snorkelling along the coast to a point and back, or up to a marker buoy and back, are also feasible. The advertised trail length of these types of linear trails must include both the out and back elements.
- Because snorkels involve complete emersion, the time spent snorkelling will be very much dependent on temperature conditions. It is best to plan for snorkels that last no longer than 45 minutes.
- The typical trail should be no longer than 1km.
- Longer snorkelling opportunities can be identified for more experienced snorkelers, and advice on the appropriateness of these routes should be sought from CFT.
- Exit points along the trail should be clearly identified, both on promotional material, and through the use of appropriate trail signage.
- The trail should avoid crossing deep water areas (>2m), and areas prone to tidal movement.
- Ideally there should be a good range of marine life observable along the trail.
- Try to identify entry and exit points that have interesting features close by, this is to keep up interest while getting ready.
- Identify and describe the main plants and animals that are likely to be seen along the snorkel in supporting information materials.

General:

- If the trail makes its way through and around islands and islets, consider preparing a simple sketch map to show the main topographical features along the route.
- Where the trail is being developed for a festival or a similar event, consider buoying-off the trail to mark the way.
- Each snorkel trail will require a risk assessment.

Legislation:

- Ensure that all entry and exit points are on public land.
- Ensure that snorkel trails are not close to or over sites that are protected for archaeological reasons, or sites that require a license to explore.

Parking

- All trails should have ample parking on public space at the trail head. Ideally this should be a public car park or a pier, with public toilet facilities.

5.7 Trail Facilities and Services

When developing a trail the facilities and services available for users should be carefully considered. Below are some examples of the main facilities and services required by users.

Proximity to local community, and access to trail site:
Consideration should be given to where the trail is located in relation to local communities, villages and towns. Good trail positioning should help increase its usage, and also visitor spending in the area. Careful consideration should also be given to how people will actually get to the trail site.

Changing rooms/Showers:
For some water based trails changing and shower facilities should be considered, or the nearby commercial provision of the same identified – (e.g. leisure centre, swimming pool, etc.)

Multi-lingual:
Consideration may need to be given for the provision of multi-lingual information on certain trails, such as those in Gaeltacht areas, or in regions with a high number of foreign visitors – (e.g. French, German, etc.)

Local trail services:
Consideration should be given to the provision of information to trail users on the range of local services – such as pubs, cafes, shops, accommodation, etc.

Using existing tourism services, or developing new services, may be possible with appropriate trail design – e.g. "Paddle & Saddle" services (where participants are brought on a canoeing or kayaking trip and then return along a tow path, coastal or equestrian trail to the start point, or vice versa).

5.8 Camping

Overnight camping forms an essential part of expedition type waterway trail experiences for youth groups, and award groups such as An Gaisce, Sionnach and the Duke of Edinburgh's Awards. Informal camping places are recommended along multi-day watercourse trails. These sites should be spaced at appropriate distances, and should include sufficient space for at least three tents and a fire pit, and also have access to drinking water. These sites should ideally be only visible from the river, so as dissuade their use by non-trail participants. Where camping facilities are not provided, ad-hoc camping by participants can result in inappropriate camping on tow paths and sensitive habitats.

The provision of official and unofficial camping sites is an important aspect of the canoe trail experience, and these sites should be spaced at suitable intervals on the trail. However, given that the participant may start and finish the trail at different points, it is not possible to identify a generic distance along trails which are suitable for these camping sites.

Also, depending on the likely trail user, the distance that can be travelled on the trail in a day will vary significantly – for example inexperienced youth groups will travel shorter distances than a party of experienced adults. The location of campsites needs to take into account such likely user differences and needs.

Local knowledge and common sense are important when selecting camp sites for a trail. Areas of significant scenic beauty are good locations for campsites, so long as the presence of the site does not undermine this location. Campsites should ideally be more than a half-day paddle from what is likely to be the main or most popular access or egress location – (see *Section 5.3* for half-day paddle distances).

In reality, the location of campsites on lakes and coastal routes with multiple access and egress points will shape the trail users decision regarding their start and endpoint, as they will begin their journey at an appropriate distance from the next campsite.

River trails tend to be completed in sections, and as the trail design develops suitable day and half-day sections of the trail will emerge. The campsite can then be located at a suitable distance from the likely start point of each trail section of between 5 to 10 kilometres.

5.9 Promoting the Leave No Trace Message

Leave No Trace Ireland has developed from a partnership of State Agencies and outdoor recreation groups, with the aim of promoting responsible use of Ireland's natural environment. Leave No Trace Ireland's educational programme empowers recreational users to take ownership of the impact their activities have on Ireland's natural environment, and other people.

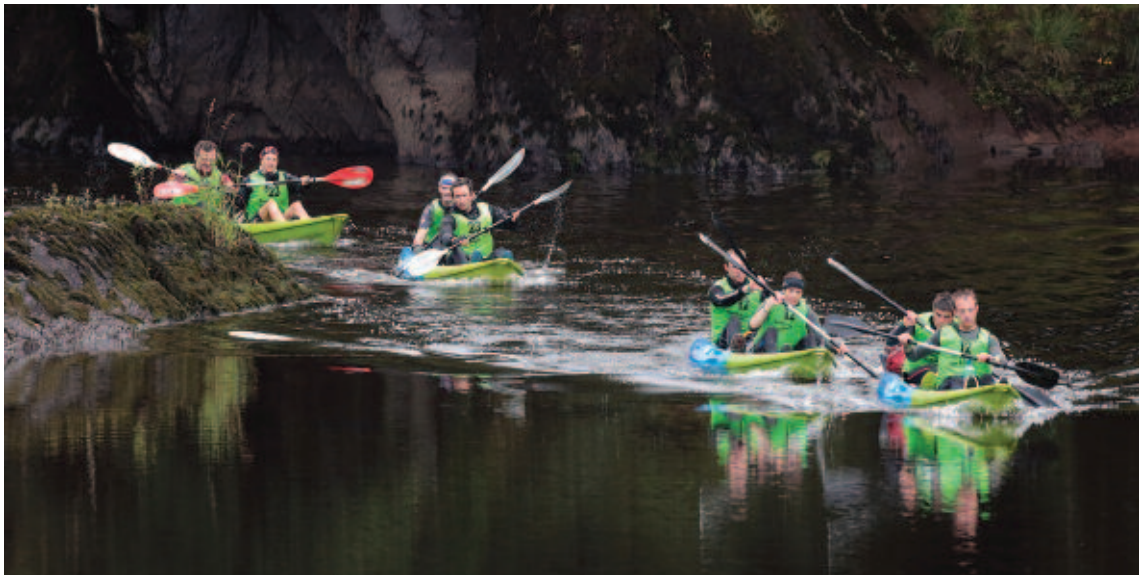
The Leave No Trace (LNT) principles can provide some guidance to trail developers when planning new recreational trails developments, and are also an effective way of communicating good practice to trail users. In addition to promoting the seven basic LNT principles, trail developers may wish to emphasise a particular rule or requirement that relates specifically to their own water trail – (*for example, trail developers may only permit camping and camp fires in designated sites along a trail, or not at all.)*

Any local requirements impacting upon a trail should be clearly highlighted on trail head information boards, on trail notices along a trail, and in print and online promotional material.

In the early stages of planning a trail its developers should become familiar with Leave No Trace Ireland, its seven principles and educational message. Trail developers should also consider:

- Reading the Leave No Trace Skills and Ethics booklet
- Inviting a Leave No Trace Instructor to help with the trail planning
- Including a Leave No Trace Awareness Session as part of the activities to launch the trail
- Becoming a partner in Leave No Trace Ireland
- Providing feedback from your trail to help in the development of the Leave No Trace educational programme

Further information on Leave No Trace Ireland can be found at: www.leavenotraceireland.org



5.10 Practical Planning Advice

This section is intended to give practical advice to trail planners when undertaking initial planning work, and when developing a trail development plan for a project.

5.9.2 Useful Equipment

The following equipment is useful in the planning of a trail:

- A Global Positioning System (GPS) unit – useful for route tracking and uploading onto digital maps, for measuring trail distance, gradient, total climb, etc.
- Smartphone Apps - there are a number of smartphone apps (such as "Map My Ride") which will map the journey taken on the trail through the GPS of the smartphone, and also locate any pictures taken with the smartphone onto the trail map
- Digital camera and voice recorder - for recording information when in the field
- Map holder - for holding maps when doing fieldwork
- Measuring tape - for measurements along a trail portage, for measuring access and egress water heights

5.9.3 Mapping

It is necessary for a trail planner to have a detailed map for the site being proposed. This may be an Ordnance Survey of Ireland Discovery Series Map at 1:50,000 scale, or a digital tile for the area, available from the OSI at: *(www.osi.ie)*. It may also be possible to obtain maps from the Local Authority.

Google Maps and Google Earth provide simple map perspectives, as does the free Map Viewer available on *www.osi.ie*. It is possible to draw trails on Google Earth maps, and then to share or print these out. Also, where copyright allows, "screen grabs" of sections of these satellite maps can be used for field work. The nature of watercourse trails is such that fieldwork maps will need to be protected from the water, while waterproof pens must also be used.

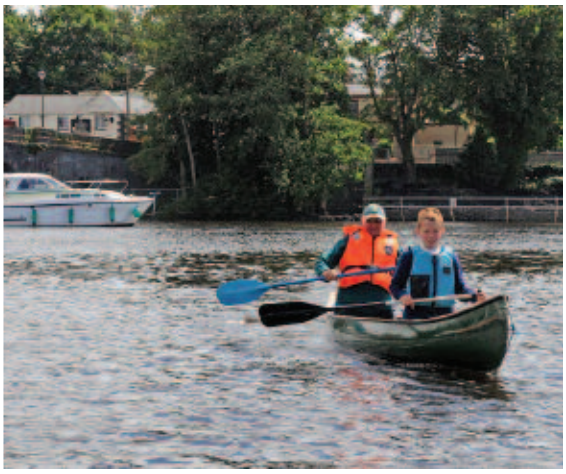
When on-site surveying and planning work starts, the chosen map will need to be marked up with the outline of the proposed route line and all other relevant information.

5.9.4 Identifying Positive and Negative Features on Water Trails

All small vessel water-trails will invariably have some positive, but also some negative, features. These features will impact on both the sustainability and attractiveness of the trail.

The following table details some of the positive and negative features to be mindful of when planning small vessel water-trails.

Positive Trail Features	Negative Trail Features
- Scenic locations - Good viewing points - Exciting and dramatic views - Water flow consistent with the trail grade - Varied terrain and surroundings - Picnic sites - Islands - Built heritage - Natural heritage - Good local services (accommodation, food, transport, etc.) - Easy maintenance - Car parking areas - Linkage to existing attractions in area - Proximity to villages/towns	- High banks which restrict the view from the water - Lack of features - Water flow more difficult than the trail grade - Overhead obstacles - Dense bank vegetation - Strainers[6] - Tipping of rubbish - Crossing busy navigation channels - High access and egress points - Long portages - Indistinct watercourse channels - Drying out at low tide
Trail Features to be carefully considered	
- Remoteness - Special areas (such as for wildlife, rare habitats, nature reserves) - Sudden or hidden increases in water speed or channel constriction	



[6] Strainers on Irish rivers are commonly caused by overhanging trees, usually still attached to the bank or wedged in the bottom of the river. Strainers allow the passage of water through them, but block or trap the canoeist.

A Guide to Planning and Developing
Small Vessel Water Trails in Ireland

Small Vessel Trail Planning Process

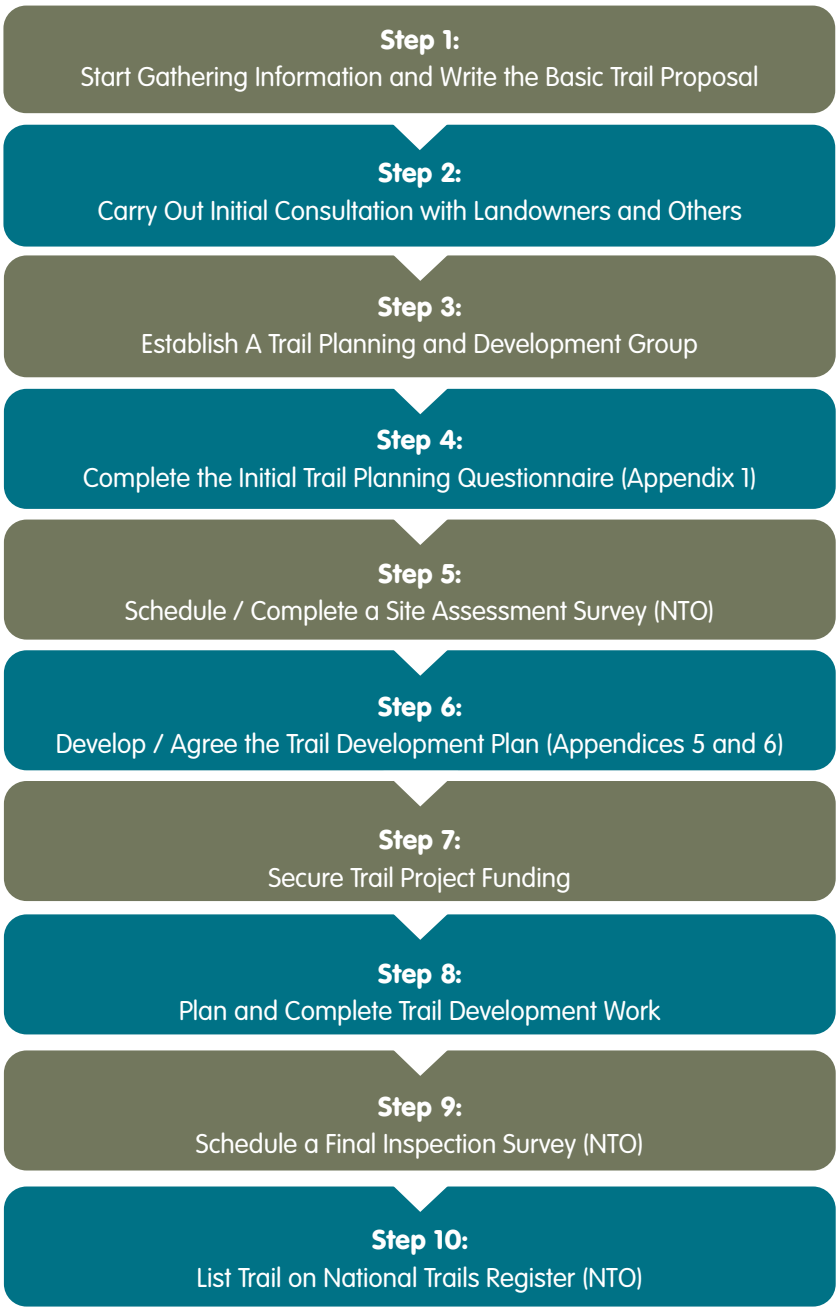
6.0

This section of the guide sets out the Step-by-Step Process for planning and developing a small vessel water trail. This process provides a structure for all trail development organisations to work with, one that ties in with the National Trails Office, the relevant National Governing Bodies, and other responsible agencies. It also ensures that a consistent approach is used on trail projects throughout the country.

When developing a trail in cooperation with another agency (e.g. Waterways Ireland), the trail developer should also be aware of any specific requirements of that agency.

The process outlined below should be followed for all recreational trail development projects in Ireland:

The Trail Planning Process



Step 1: Gather Information and Write a Basic Trail Proposal

In order to progress the trail idea, the proposer should put together a project brief which succinctly outlines the trail concept in broad terms. Information such as the location, length, difficulty (river grade), primary access and egress points, usage seasonality, any specific water or land hazards, and likely user profiles should be identified at this stage.

The trail developer should become familiar with the contents of the following documents, available from the National Trails Office/Irish Sports Council:

- *'A Guide to Planning and Developing Recreational Trails in Ireland'*
- *'Classification and Grading for Recreational Trails'*
- *'Management Standards for Recreational Trails'*

In developing the basic trail proposal the trail developer must consider the impact of the weather on the trail, and in particular, high and low water levels, the wind and tides. For example, low river levels due to periods of low rainfall can make a waterway trail too shallow, and largely un-navigable, while strong off-shore winds can make a normally easy or placid section of a lake or coastal kayak trail difficult and dangerous. Indeed the water and wind levels can also impact on the time required to complete the trail. Navigating a small vessel into a headwind, or on shallow water, will take significantly longer than navigating with the assistance of a tail wind.

In addition to these weather variables, river trails (unlike land based trails) are somewhat unique in that there are typically no alternative routes - access to the entire course of the river between the access and egress points is ordinarily required.

There may also be places along the trail which require short portages, such as:

- Man-made obstacles: low bridges, locks, jetties, weirs.
- Natural obstacles: cascades/waterfalls, fallen trees, accumulated debris.
- Environmentally sensitive areas: areas of conservation, spawning sites.
- Commercially sensitive areas: commercial fishing perches.

Step 2: Initial Consultation with Landowners and Others

With the basic trail proposal in mind, the trail proposer should:

- Ascertain the ownership and riparian rights on the waterway.
- Identify the other waterway stakeholders.
- Identify the trail features which may require land access/portaging, such as weirs, locks, etc.
- Identify the locations of occasional trail features which may impact on the navigability of the trail, and may result in exceptional egress onto and along the trail banks – (e.g. in order to avoid a rapid during periods of high water).
- Identify and prepare a response for any vested interests (for example commercial fisheries) which might conflict with the use of the water course as a trail.

Once the trail features and all the relevant owners and stakeholders are established, the trail proposer should then identify the most appropriate means to communicate with them. Indirect contact, through a local member of the community or a neighbour, can sometimes be more effective than direct communication from the trail proposer. The leakage of the trail concept to the general public in advance of stakeholder awareness is to be avoided. However, those who might be able to assist the realisation of the project need to have sight of the basic trail proposal before their conversation with the stakeholders – (refer to *Sections 1.5, 1.6* and *1.7* for further information on this topic).

While the trail developer may not have all the details available at the preliminary stage, early consultation with landowners is crucially important. Early consultation allows for discussion on some of the issues that may need to be considered for the project to take place, and it also offers an opportunity for the developer to get permission from the landowner(s) to undertake more research and planning work along the route.

Note: Permission may also be required from other landowners in order to gain access to the banks of the waterway for the initial trail research.

With forethought and consideration for other water course users it is usually possible to secure access. However, some seasonal or site specific restrictions on access to some parts of the water course may emerge at this stage.

In addition to initial landowner consultation, the other key factors relating to the proposed trail that should be considered at this stage are outlined below, under the headings A to C. Most of these details will be required in order to complete an **Initial Trail Planning Questionnaire (Step 4)**.

A. Overall Objectives and Likely Users of the proposed trail
- Expected origin of intended users
- Type of users
- Evaluation of demand for the trail

B. Trail information
- General profile of the trail, such as its grade and any specific water features or access issues
- Ownership, fishing and navigation rights on the trail, and access/egress points
- Environmental, heritage, and other outstanding features and statutory designations
- Scale of the proposed development
- Possible trail route
- Length of trail loop or linear trail
- Possible location of trail head and other access and egress points
- Agreement in principle with owners

C. Project Organisation
- Responsibility for delivery of the trail
- Other organisations which could/should be involved in the project
- Responsibility for ongoing management of the trail

Step 3: Establish a Trail Planning and Development Group

Before starting to plan a trail development project in detail it is recommended that a Trail Development Working Group should be formed. This is essential not only to spread the workload, but also to ensure that the key stakeholders in the project are represented. In some cases there may be a lead organisation (e.g. a Local Development Company), and then other partner organisations (Local Authority, tourism organisation, etc.). In such a situation the committee will typically be chaired by a representative of the lead organisation.

It is recommended that other members of the committee would be representatives from partner organisations, and also from other groups affected by or interested in the trail development.
In all cases there are some organisations whose support for the project and representation on the committee are crucially important, and these include:

- The Local Authority.
- User-Group Representatives: canoeists, rowers, and other potential trail users as appropriate.
- Landowners, where a significant amount of the trail is to be located on their property – (e.g. Waterways Ireland, Coillte, National Parks & Wildlife Service, private landowners, etc.).

In addition to those mentioned above, other local organisations may also be interested in being represented on the committee, including the following:

- Community Councils and Chambers of Commerce
- Local Development Companies
- Tourism Organisations
- Local Sports Partnership
- Local Authority Heritage Officer

Unlike land based trails, this water trail planning and development group will have minimal trail design and construction tasks. Rather, key responsibilities within this group are likely to include:

- Stakeholder/Landowner communications.
- Trail resourcing and funding for signage and supporting infrastructure.
- Technical trail navigation, on-water trail route choice, portage, access, egress and transition routes.
- Weather related issues, appropriate reference points such as water levels, difficult wind directions, and other supporting information.
- On-trail and to-trail signage, and promotional materials and events.
- Built and natural heritage considerations, especially along river and lake banks.

Step 4: Complete the Initial Trail Planning Questionnaire

Following the initial planning an *Initial Trail Planning Questionnaire* should be completed. A copy of the questionnaire is included in this publication – (see *Appendix 1*) and is also available to download on the wensite www.irishtrails.ie

The questionnaire asks for the details established in the initial planning study, as described above. The questionnaire seeks to ensure that the developer has considered all the essential elements which will be required for a successful trail plan.

When completed in full, the questionnaire should be returned to either Canoeing Ireland, the Irish Underwater Council, or the National Trails Office as appropriate.

Canoeing Ireland
Irish Sport HQ
National Sports Campus
Blanchardstown
Dublin 15
Email: office@canoe.ie
Tel: (01) 625 1105
www.canoe.ie

Irish Underwater Council
78A Patrick Street
Dun Laoghaire
Co Dublin

E-mail: info@diving.ie
Tel: (01) 284 4602
www.diving.ie

National Trails Office
Top Floor, Block A
West End Office Park
Blanchardstown
Dublin 15
E-mail: nto@irishsportscouncil.ie
Tel: (01) 860 8800
www.irishtrails.ie

It is imperative that landowners have been consulted about, and agree in principle to, the proposed trail before the Initial Trail Planning Questionnaire is submitted.

Review of Questionnaire by Canoeing Ireland/Irish Underwater Council/National Trails Office

- Upon receipt of a fully completed questionnaire, Canoeing Ireland/Irish Underwater Council/ National Trails Office will review the questionnaire to ensure that all the necessary details have been completed, and that the information provided is clear.

- If clarification is needed on any information, Canoeing Ireland/Irish Underwater Council/ National Trails Office may contact the submitter to get further information, or to discuss the proposal in more detail.

Step 5: Schedule/Complete a Site Assessment Survey

It is strongly recommended that all small vessel water trail projects receive some independent advice from a suitably qualified and experienced water trail advisor. The National Trails Office in conjunction with Canoeing Ireland and the Irish Underwater Council will establish a panel of water trail advisors for this purpose.

If the proposal is deemed feasible for development, and all the required information has been provided, Canoeing Ireland/Irish Underwater Council/National Trails Office will assign a trail advisor to the project, and schedule a Site Assessment Survey of the project with the trail proposer.

During the Site Assessment Survey the trail developer will accompany the assessor. The assessment will include both an assessment of the details in the questionnaire, and an assessment of the proposals on the ground.

After the Site Assessment the NTO will issue a report on the findings of the assessment, including specific recommendations regarding the development of the trail.

This survey may require minimum water levels in order to undertake it from the water, and to get an accurate sense of the grade of the trail and its water hazards. Such a requirement should be identified in the questionnaire if relevant, and this may require the inspection of a watercourse during "normal" water levels.

Step 6: Develop/Agree the Trail Development Plan

If the assessment establishes that the proposed trail development is appropriate and feasible, the report will recommend that the developer proceeds to the next stage of the Trail Planning and Development Process – that is to produce a Trail Development Plan.

- Detailed consultation and agreement will be required by all project partners (including landowners, managers, developers and funding authorities) on the Trail Development Plan, as this document will be the primary reference document for the overall project.

- It is recommended that local communities and likely user groups are also informed, and consulted, on the trail development plans.

- The Trail Development Plan should include the following:

- Purpose and aim of the trail development
- Roles and responsibilities of the partners in the development
- Intended users of the trail
- Definitive line of the trail route on a map
- On-site development details – including construction (if required), signage, interpretation, trail furniture, etc.
- Method of trail delivery/development
- Resources needed to implement the project
- Trail management and maintenance arrangements

Additional Trail Development Plan information is included in Appendices 4, 5 and 6.

- The Trail Development Plan will vary in detail and extent depending on the scale of the proposed trail. For trails which will use existing infrastructure (such as car-parks, slipways, quays, tow paths, etc.), the development plan will be a simple document which provides a map, and shows the locations of trail infrastructure and furniture. This plan can be used to proceed with trail delivery, once agreement has been reached with all partners.

- Agreement on a long term management structure for the trail is a very important element of the Trail Development Plan.

- Projects which may involve some infrastructure construction or portage trail building, will have a specification for construction included as part of the trail development plan, and may require some further consultation during the layout of the route.

- Projects which are substantial regional or national trail developments will require a much greater level of detail, and they may also have a number of stages before a Trail Development Plan is agreed. This may include an initial layout plan, requiring public consultation, before the development of detailed trail construction specifications.

- Trail developers may require assistance in drafting and developing a Trail Development Plan. The National Trails Office maintains a list of recognised trail advisors who can work directly with trail development groups to help them produce such a plan.

- A copy of the Trail Development Plan should also be sent to the National Trails Office for information purposes.

Note that all directions (i.e. left and right) on rivers are based on the perspective of the user while facing downstream. Lakes and coastal trails reference the compass, either in degrees or points (such as North, South, etc.).

Step 7: Secure Trail Project Funding

At some point during the trail planning process funding for the project will need to be secured. *Sections 2.3, 2.4 and 2.5* provide additional information on the development and operational costs of small vessel water trails.

Typically the full extent of the funding required will not become apparent until a *Trail Development Plan* has been completed, although it may be possible to estimate the cost of the trail earlier in the planning process, particularly if the development is quite basic and will not need any trail construction work carried out.

Most funding bodies will require a *Trail Development Plan* to be submitted with the funding application. In addition, having a clear and well-thought out plan will enhance the developers chance of securing funding. Funding should be in place before any work on the ground commences on a trail project, and no work on the trail should commence in advance of funding being confirmed, as these costs are unlikely to be eligible under typical grant funding arrangements.

Note that the classification of trail being sought can also significantly impact on the trail development costs, as defined trails typically have higher infrastructure costs. The nature of the intended user group will largely determine the appropriate classification, and it may not therefore in all cases be appropriate to change from a *Defined* to a *Wilderness* trail classification due to insufficient trail development funds.

Step 8: Plan and Complete Trail Development Work

When funding has been secured work on the development of the trail can commence. This stage will involve the full implementation of all the work outlined in the *Trail Development Plan*, and will usually include installation of trail furniture and signage, development of access and egress points, construction of parking areas and other trail facilities, and development of trail guides, information boards and websites.

On some projects this will involve the developer securing the services of a trail development contractor, while on other projects local staff resources may be available that can be utilised. When third party contractors are hired for a project, it is recommended that a contract is put in place between the parties, outlining in detail the full services to be provided, the specifications for all materials, all requirements the contractor is expected to deliver and the timeframe for delivery.

It is strongly recommended that trail development and construction work should be undertaken and supervised by persons with experience in this area.

Given the nature of watercourse trails care must be exercised in using volunteer labour, even if volunteers are experienced water users. Riverbank work and the erection of water based signage is typically outside the experience of most volunteers, and so detailed preparation and support equipment is required.

Contractors for small vessel trail construction who are working on or close to water must have experience of the associated hazards, wear suitable protection and have sufficient safety support in place.

Step 9: Schedule a Final Inspection Survey

When all work has been carried out and the trail is completed (including signage), the trail developer must seek a Final Inspection from Canoeing Ireland/Irish Underwater Council/National Trails Office. This is to have the trail accredited and added to the National Trails Register.

- A *Final Inspection Checklist*, and a 1:50,000 map clearly showing the line of the trail, must be submitted to Canoeing Ireland/Irish Underwater Council/National Trails Office for a final inspection to be undertaken.

- During the final inspection, the Inspector will check the trail against the guidelines laid out in the NTO's '*Management Standards for Recreational Trails*.'

- A representative of the trail development agency, who is familiar with the route of the trail, must accompany the inspector during the on-the-ground inspection.

- Upon completion of a Final Inspection, a *Final Inspection Report* is issued from the National Trails Office to the trail developer.

- The *Final Inspection Report* will include an overall comment, and a statement on whether the trail complies with the NTO's '*Management Standards for Recreational Trails*.'

Step 10: List Trail on National Trail Register

The National Trails Office maintains a register of all the developed recreational trails in Ireland:

- Where the trail complies with the NTO's '*Management Standards for Recreational Trails*', it will be accredited and included on the *National Trails Register*, and also displayed on the NTO's website (*www.irishtrails.ie*)

- Where the trail does not comply with the '*Management Standards for Recreational Trails*', a listing of any corrective actions will be included in the report. When all corrective actions have been addressed, and confirmed to the National Trails Office, the trail will be listed as being Fully Accredited.

- Once a trail is listed on the *National Trails Register*, it will be inspected regularly to ensure that it maintains the requirements of the NTO's '*Management Standards for Recreational Trails*'.

- If a trail fails to meet the standards, this will be recorded on the *National Trails Register*, and highlighted on the NTO website (*www.irishtrails.ie*), until such time as all issues identified have been fully addressed.

A Guide to Planning and Developing
Small Vessel Water Trails in Ireland

Useful Contacts

7.0

7.1 Useful Contacts

The following is a list of some agencies and organisation that may assist in the planning of small vessel water trails in Ireland.

National Parks and Wildlife Service:
The National Parks and Wildlife Service (NPWS) operates six National Parks and nearly eighty Nature Reserves around the country, each of which have been designated for their particular importance, value and contribution to natural heritage, from a national and in some cases international perspective. To the greatest extent possible the NPWS encourages and facilitates public access to and the appropriate visitor use of these parks and reserves. Some water courses and access points to water courses are within NPWS lands.
www.npws.ie

ESB (Electric Ireland):
ESB is another semi-state organisation, and while not an owner of large areas of land, the company does have some landholdings which may be suitable for the development of water trails.
www.esb.ie

Waterways Ireland:
Waterways Ireland provides designated walking trails along several of its waterways, and there may be potential for the development of non-land based trails on Waterways Ireland property, including canoe trails.
www.waterwaysireland.ie

Inland Fisheries Ireland:
Inland Fisheries Ireland is the state agency responsible for the protection, management, and conservation of Ireland's inland fisheries and sea angling resources. Ireland has over 74,000 kilometres of rivers and streams and 128,000 hectares of lakes, all of which fall under the jurisdiction of IFI.
www.fisheriesireland.ie

Coillte:
Given the extent of Coillte landholding, and their current provision of recreation facilities and access on some of these lands, Coillte property may border or include watercourses, or provide access and trailhead facilities for watercourses.
www.coillte.ie

Irish Water Safety:
Irish Water Safety (IWS) is the statutory voluntary body established to promote water safety in Ireland. IWS can provide advice on aquatic projects that may have water safety implications.
www.iws.ie

A Guide to Planning and Developing
Small Vessel Water Trails in Ireland

Appendices

Appendix 1: Initial Trail Planning Questionnaire for water trail development projects in Ireland

The National Trails Office, Canoe Ireland and the Irish Underwater Council request that the following questionnaire be completed by any organisation or committee proposing to develop a water trail in Ireland.

A hardcopy of the completed questionnaire and any attachments (overview, map, etc.) should be returned to:

(Canoe/Kayak Trails)

Canoeing Ireland
Irish Sport HQ
National Sports Campus
Blanchardstown, Dublin 15
Email: office@canoe.ie
Tel: (01) 625 1105
www.canoe.ie

(Snorkel Trails)

Irish Underwater Council
78A Patrick Street
Dun Laoghaire

E-mail: info@diving.ie
Tel: (01) 284 4602
www.diving.ie

(Trails in General)

National Trails Office
Top Floor, Block A
West End Office Park
Blanchardstown, Dublin 15
E-mail: nto@irishsportscouncil.ie
Tel: 860 8800
www.irishtrails.ie

When the questionnaire has been received by the NTO/Canoeing Ireland/Irish Underwater Council it will be assessed, and if deemed suitable a site assessment survey will be undertaken by a qualified water trail advisor.

This questionnaire can be downloaded from the website www.irishtrails.ie

Trail Planning Questionnaire

1. **Name of the Proposed Trail Development:**

_____

2. **Type of Trail(s) to be included** *(tick as appropriate)*

- ☐ Coastal (Sea)
- ☐ River
- ☐ Canal
- ☐ Lake
- ☐ Snorkel
- ☐ Other

3. **General description of the proposed development:**
(N.B.) Include: location, capacity for car parking, nearest services, etc.

_____

4. **Contact person for project:**

Name: _____

Address: _____

Tel: _____

Mobile: _____

E-mail: _____

Trail Information:

5. **What is the expected origin of most users of the trail?** - (tick as appropriate)

- ☐ The local community (10km radius)
- ☐ People from within the county (50km radius)
- ☐ People from within the wider region (100km radius)
- ☐ People from all over the country, and international visitors

6. **Who are the intended types of users?** - (tick as appropriate)

- ☐ Led groups of novices
- ☐ Enthusiasts
- ☐ Experienced users
- ☐ Family groups
- ☐ Reduced mobility/disabled users

7. What evidence is there to suggest a demand for the proposed trail from the users identified?

8. Proposed trail route, or general location of the proposed development -
(provide a 1:50,000 OS map showing the proposed trail):

9. Length of the proposed trail in Kilometres:

10. Is the proposed trail to be a Loop (circular) trail, or a Linear (point-to-point) trail?

11. What Classification and Grade of trail do you propose to develop? –
(refer to the Classification and Grading Information in Section 3).

Trail Classification: *(Please select)*

- ☐ Defined Trails
- ☐ Wilderness Trails
- ☐ Snorkel Trail

Trail Grade *(Please select)*

- ☐ Grade One
- ☐ Grade Two
- ☐ Grade Three

12. Are there any outstanding features or characteristics on the trail? - (e.g. scenery, physical features, heritage sites, etc.)

13. Is there any trail furniture already in place on the proposed route? - (e.g. map boards, signposts, portage trails, slipways, quays, etc.)

14. If using existing infrastructure, are the access and egress points at a standard consistent with the classification of the trail, or will they require some alteration?

15. Will any sections of the trail require additional supporting infrastructure, or watercourse restoration?

16. Are there any hazardous water features on the trail, such as mill races, weirs, strainers, fallen trees, exceptional stoppages, etc? – (YES/NO)
(If 'Yes', please provide details):

17. Are there any compulsory portages or alternative routes on the trail in order to avoid a hazardous water feature? – (YES/NO)
If 'Yes', please supply a map of any portages or alternative routes (e.g. canal sections) – a 'Google Map' or 'Ordnance Survey Ireland' map will suffice.

18. Are there minimum and maximum water levels, tidal streams, or wind directions which are hazardous for users of the trail? – *(YES/NO)*
(If 'Yes', please provide details, and a map of these locations (if appropriate):

19.
(a) Please list any navigation rights on the trail, and their owners (e.g. a shipping lane):

(b) Identify any fishing rights owners on the trail:

(c) Has each landowner and rights owner been consulted, and have they agreed in principle to the proposed development? – *(YES/NO)*

(d) Have each of the landowners and rights owners given their permission for entry onto their land to allow for an assessment of the trail proposal? – *(YES/NO)*

20. Will the route of the proposed trail pass through or close to any area of national heritage - e.g. natural, archaeological, architectural, etc.? – *(YES/NO)*
(If 'Yes', have the relevant authorities been consulted, and have they given permission for the development to proceed?)

Project Management Information

21.
(a) What organisation or agency will take the lead role, and responsibility for delivery of the proposed trail?

(b) What contribution will this organisation make to the project?

22. Will other organisations be involved in the project? - (YES/NO)
(If 'Yes', please list all partners in the project, along with their reasons for being involved in the project and details of the contribution they will make - (e.g. financial, land access, marketing, materials, labour resources, etc.)

23. What is the scale of the proposed trail development? - (please tick one):

- ☐ Small Scale Project (under €20,000): Short trail system, largely using existing infrastructure.
- ☐ Medium Scale Project (between €20,000 and €50,000): A number of new trails, requiring some trail construction and infrastructure.
- ☐ Large Scale Project (over €50,000): A number of trails, with supporting facilities/amenities, varied landscapes along route, trail construction required.

24. How will the project be financed?

25. Please provide any other relevant information about the Trail Project Organisation:

26. Who will be responsible for the ongoing management of the trail after development, in accordance with the NTO handbook '*Management Standards for Recreational Trails*'?

27. Are there any known constraints or conflicts which could impact upon the project?
– (YES/NO)
(If 'Yes', please provide details:)

Signed: _____

Dated: _____

Trail Planning Questionnaire Supporting Notes:

The following are Supporting Notes to the Trail Planning Questionnaire.

Q9.
This question provides an opportunity to identify the access and egress requirements for the trail.

Q10.
This is only relevant with respect to access, egress, and portage routes.

Q10.
Looped trails are possible on coastal routes, for example around off-shore islands, and also around the circumference of lakes. Also, there are some river trails which offer a loop back to the trail's start point, via a parallel canal structure. You will need to provide additional detail on the nature of any loop trail, by indicating if it is coastal, lake, river or canal based, and by describing the nature of the loop itself.

Q11.
Canoe/kayak trails are typically graded using the 1 to 6 River Grading System. Most trails will be graded as either a Grade 1 or a Grade 2, however, rainfall and consequent flooding can increase these grades, and this will have to be noted. Alternatively, you may wish to indicate that the trail is closed once water levels reach a certain point.

Similarly, on coastal trails and estuarine rivers the impact of tidal streams may need to be noted on the trail promotional material, especially the rule of twelfths, and the 3rd and 4th hour of the tide, and most notably during spring tides.

Snorkel trails grading guidelines are provided in *Appendix 9* of this document.

Appendix 2: Signage Specifications

Introduction

The following appendix illustrates trail signage solutions for canoe/kayak trails. We have approached the issue of signage based on the following assumptions:

- The use of icons is preferred, rather than the use of text, in order to cater for multiple nationalities and to facilitate drivers navigating to trailheads.
- Simplicity is vital in order to reduce sign size and costs.
- Adherence to Irish information signage norms.

Context

There are no definitive icons or symbols for canoe/kayak trail signage in Ireland or the UK Signage tends to be designed according to Local Authority and trail branding requirements.

'*Tourism Signs & Symbols: A Status Report & Guidebook*', p138, from the World Tourism Organization, 2001, (ISBN: 92-844-0378-2), provides the information on the following canoe/kayak trail signage.

CANOEING

Use: To indicate and identify a location for canoeing activity
Image Content: Human figure canoeing above two wavy lines
Application: Outdoor recreation areas, maps, guidebooks, orientation diagrams
Origin of example: New Zealand

We suggest that the above symbol or something similar be used, within the design constraints of the National Roads Authority and Fáilte Ireland's 'Tourism Signage' criteria. The local City/County Council will identify the local licensing process required for the erection and maintenance of this signage.

Signage samples and recommendations

Signage should be used sparingly on the trail, and only where it serves a purpose. There is no need for signage along the route unless it alerts the participant to a particular, or indistinct, route choice or hazard. The following signs are examples of the recommended tourism information colour scheme, as applied to named trails and continuity signage. While initial *Type 1* location signage (illustrated overleaf) used at the nearest large road to the trailhead might include the name of the trail and the canoe/kayaking symbol, the canoe/kayaking symbol will be used on its own for continuity signage – *Type 2*. Additional brand icons might also be used on this *Type 2* signage, where appropriate.

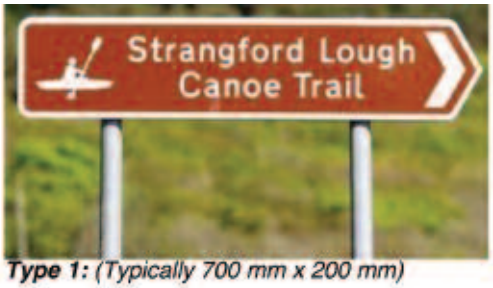
Waterway User Signage

A canoeist's eye line is three to four feet above the water line, hence waterway signage must be clearly visible from the water (and located on the opposite bank), but not necessarily visible to a non-trail user. However, such low-sitting signage has the potential to trap and accumulate flotsam during high water levels. Thus bearing in mind the wilderness of the setting, and the likely signage maintenance requirements, such waterway signage should be used sparingly.

Signage on the waterway to direct users towards appropriate egress points and away from potential dangers are more flexible in their design.

The following *Type 3* sign is an example from the Scottish Canoe Association, it is located in the river channel just above the high water mark and is not easily visible from the adjacent bank.
Note that sea canoeing and lake trails are less suitable for on-water signage – hence supporting publicity material should include the relevant safety and facilities information. This type of publicity material should be designed for ease of access and use (folded DL), and be robust enough to protect against water infiltration and also rubbing and tearing. The Northern Ireland canoe/kayak trail supporting information is an example of good practise in this regard. Guides for the Erne System and Lower Bann are available free of charge from the Waterways Ireland webshop at: *www.shopwaterwaysireland.org*.

Land based signage for trail users (such as portage direction signs) are also required at some locations. These signs might be fixed on a fence or a wall where the portage route is unclear. The following *Type 4 Roundel* is a proposed approach. This roundel also indicates the difficulty of the river trail through its colour coding.



Type 1: *(Typically 700 mm x 200 mm)*

Type 2: *(Typically 400 mm x 200 mm)*

Type 3: *(Typically 500 mm x 200 mm)*

Type 4: *Roundel*

Type 5: *River Level Signage*

Supporting Road Signage Information

The following is an outline of the signage standards for Ireland, as laid out by the Fáilte Ireland and National Roads Authority 'Tourism Signage' criteria.

In general, the National Roads Authority (NRA) is responsible for signage on the Motorways, Dual Carriageways, National Primary and National Secondary routes ('M' and 'N' numbers). The Local Authorities, under the guidance of the Department of Transport, Tourism and Sport, are responsible for signage on the Regional and Local routes ('R' and 'L' numbers). Local Authorities license signage for all types of tourist attractions and facilities that require the brown coloured tourist signage.

Tourist signage - (which takes the form of white text on a brown background) - should only be used to sign tourist destinations. A tourist destination may be defined as a permanently established destination that attracts or is used by visitors. However, eligibility for signage does not always guarantee that signage will be provided. Other factors have to be taken into consideration, such as traffic management, visitor numbers and road safety. Some flexibility will be exercised in respect of the visitor number thresholds if there are good traffic management or safety reasons, and depending upon the availability of space to accommodate signage.

The maximum number of destinations that will be permitted on an individual sign is four. Priority for tourist signage will be given to those destinations with the greatest traffic management or road safety, needs. The NRA will make the final decision as to which destinations should be signed, in conjunction with the relevant Local Authority and following consultation with Fáilte Ireland.

National Roads Authority Signage Policy

Additional signage information is available from the National Roads Authority's ***'Policy on the Provision of Tourist and Leisure Signage on National Roads, Revision 1, March 2011.***

Appendix 3: Trail Infrastructure Specifications

Background

The following are outline specifications for canoe/kayak trail infrastructure. Unlike most other recreational trails, the surface of a canoe/kayak trail is rarely an issue, except where modifications to the bed of the waterway are required in order to calm or stimulate water flow and shape. In the case of canoe/kayak trails, the access and egress infrastructure poses the main challenge, and the main area of trail development expense.

Technical Standards

- The access, egress and portaging facilities of proposed canoe/kayak trails should ideally accommodate the higher expectations and greater needs of the entry level participant, but must not exceed the capacity of the more experienced canoeist. Infrastructure recommendations for the trail, as outlined in the following table, range from the "ideal" to the "acceptable", rather than identifying a single definitive standard.

- While the trail infrastructure provided will, when possible, facilitate group access and egress, this group infrastructure will not be possible at all locations, due to issues of appropriateness, space, expense and impracticality.

- Existing in-situ facilities will, when possible, be used to facilitate the trail. This is preferential to constructing additional new infrastructure – (e.g. map-boards, landing stages, etc.)

Recommended Access and Egress Infrastructure Criteria are as follows:

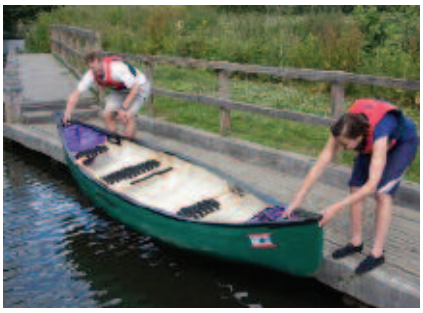
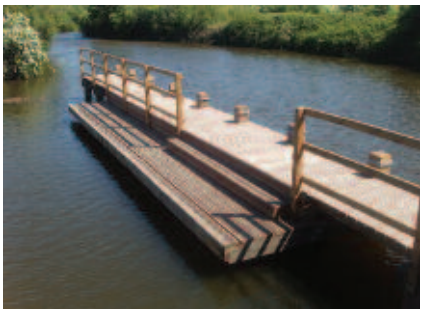
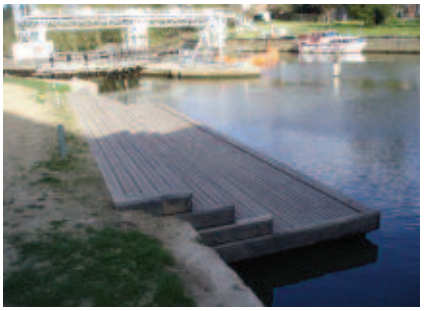
Infrastructure	Dimensions	Comment
Access and Egress – landing stage heights	• Maximum Depth of the landing stage below the water (wet landing) - 200 mm[7] • Ideal Height of the landing stage above water - 300 mm[8] or less • Maximum Height of the landing stage above water - 700 mm	• A floating pontoon should be used where water levels fluctuate • Heights above 600 mm may need to be supplemented by hand-holds at a lower height • Where there is significant water flow at the landing stage, heights should be closer to the ideal than the maximum • Beaches also provide suitable access and egress points, where they are uncovered at all stages of the tide, or are at typical lake water levels
Access and Egress – landing stage platforms	• Minimum landing stage platform Length - 800 mm, width - 300 mm • Ideal landing stage platform Length - 3 metres, width - 1.5 metres • Slope to and from the landing stage - ideally no more than 1:3 • Risers - typically 250 mm	• Landing stage platforms should allow for the placing of the participants paddle on the shore, and facilitate the relatively ungainly body movement required in accessing and egressing the canoe/kayak

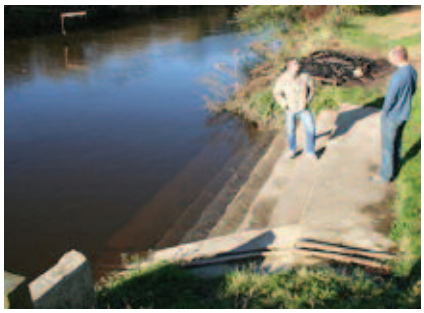
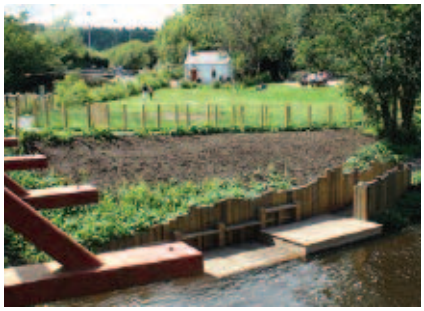
Infrastructure	Dimensions	Comment
Access and Egress – landing stage obstructions	• 6 metres of unobstructed riverbank is recommended	• Canoes/kayaks range in length from 1.6 to 6 metres • Egress and access riverbanks can be convex or irregular, but not concave
Access and Egress – landing stage surfaces	• The edge of the landing stage nearest the water should ideally be curved to a 50 degree radius	• Reduces fall injuries, and rubbing damage to canoe/kayaks
Canoe slides	• The tie-off point on lowering stanchions should be higher than the highest point on the slide • Canoe slides should ideally be set at 45 degrees, however the bank's slope will dictate this • Access to either side of the canoe at the end of the slide is preferred • Wood or durable plastic should be used as the sliding surface • Sharp corners are to be avoided on all sliding areas • Slide designs should not facilitate sliding by individuals • Appropriate description and safety signage is required	• Stanchions heights will typically be determined by the slide height • Canoes are primarily made of plastic and abrade readily on sharp surfaces • An overly shallow slope will require the pulling of the canoe downwards, due to the friction of the canoe on the slide surface • Open canoeists should be encouraged to carry painters (bow and stern ropes), each of which is at least the length of their boat, as painters facilitate the lowering of the canoe on slides
Portage	• A portage of less than 100 metres is preferred	• Unladen open canoes weigh circa 20 kilos
Portage dimensions	• Open canoes are up to 6 metres long and 1 metre wide. All turning points on a portage must accommodate this, or facilitate the lifting of the craft	• On land canoes can be raised at one end, in order to minimise their length when turning in tight spaces. However their weight makes this manoeuvre difficult

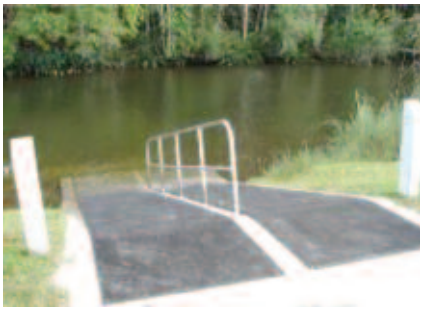
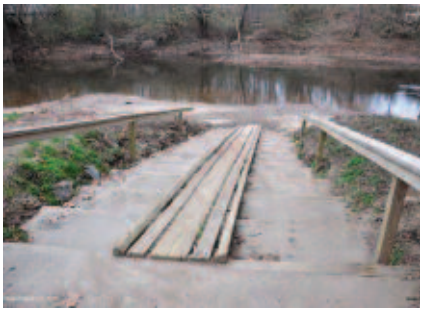
[7] A wet landing refers to access or egress points which are typically covered by water – (for example, a shallow step or a sloped bank). Hence the depth (200 mm) refers to the depth of the water at the landing stage.

[8] A bank which is 300 mm above the water line is approximately at the same height as a kayak cockpit (a more difficult craft to access and egress than an open canoe). Hence at this height a paddle can be used as a horizontal platform to connect the kayak with the bank. At higher bank levels the angle of the cockpit lip to the bank becomes more significant, and prevents the use of the paddle as a support for access and egress.

Appendix 4: Examples of Canoe Trail Infrastructure

Type	Comment	Illustration
1 (a)	A well proportioned access and egress platform. A good water height line facilitates the lowering and removal of the craft, as well as access into and out of the craft.	
1 (b)	This canoe platform is attached to the rear of a higher landing platform used for motor craft.	
1 (c)	This canoe platform is attached to previously existing canal lock infrastructure.	
1 (d)	Experienced kayakers will "seal-launch" from appropriate platforms. These platforms must be sufficiently robust to accommodate this.	
2 (a)	Canoe steps are appropriate on waterways with varying water levels. These platforms can be proud or recessed, with the latter typically used where there is a significant water flow.	

Type	Comment	Illustration
2 (b)	Recessed concrete steps - note the large underwater step to prevent beginners from inadvertently swimming.	
2 (c)	These sequential canoe steps are appropriate where space or water flow restricts the size of a structure.	
2 (d)	Restored bank rock outcrops provide steps and launch platforms.	
3	Slipways provide good access for canoes. However they can result in wet feet, or the abrasion of the underside of the canoe if it is pulled across the concrete of the slip when laden. Wooden slide strips on one side of the slipway minimise this abrasion, and also provide traction for feet when slips are wet. Low platforms to the side of these slips – as seen in the adjacent photo – enable others to assist beginners in accessing and egressing.	
4 (a)	This wooden canoe launch is robustly constructed - note the level platforms at the base to facilitate handling.	

Type	Comment	Illustration
4 (b)	A more rudimentary launch - this design can simply be staked into existing river banks.	
4 (c)	This concrete slide is low maintenance, and it facilitates the participant descending or ascending alongside their boat. The surface has a rubber mat affixed to it.	
4 (d)	This canoe slide is incorporated into a flight of steps. This design offers a simple and robust structure, but it is open to abuse by wheeled toys.	
4 (e)	This steep and long staircase handrail has been doubled-barred in order to provide a canoe slide.	
4 (f)	Canoe slide with a lowering stanchion in the foreground – note the fenced perimeter to dissuade casual use. A "Canoeists Only" sign is also erected. It is probable that the width of this slide is excessive at 600 mm, given that some canoes can be less than 800 mm wide. It is likely that the canoe will drop onto its side in between the two posts on this slide. This slide cannot be used for kayaks for this reason.	

Type	Comment	Illustration
5 (a)	Stairway for access to the water's edge - ideally these do not have a sharp turn, due to the difficulty this creates for individuals carrying kayaks.	
5 (b)	Stairway for canoe access, including a ninety degree turn – note the absence of a fence on the right hand side, this facilitates the swinging of the kayak on ascent and descent.	
6	A concrete access platform with a rounded leading edge. This feature reduces abrasion on canoes accessing and egressing the waterway.	

Appendix 5: Trail Development Plan Template

This template can be downloaded from the Publications section of the NTO website: www.irishtrails.ie/National_Trails_Office/Publications

Trail Development Plan

This plan forms an important reference point for proposed trail developments as it defines the roles of the different partners in the proposal, ensuring that each partner knows what is required of themselves and of the others involved, in order to bring about the effective delivery and management of a developed trail.

It also details the required inputs and resources for all aspects of trail construction, signage, interpretation, and associated facilities such as car-parking, picnic areas, etc.

The report is laid out in three sections:

1. General Overview
a. Background information
b. Purpose and aim of the development
c. Roles and responsibilities of the partners

2. Trail Development
a. On-site development details
b. Resources required

3. Post-Development
a. Management and maintenance arrangements

Appendix 1. Map showing the definitive line of the trail route.
Appendix 2. 'Special structures' details - e.g. portages, canoe slides, etc.
Appendix 3. Signage details - e.g. information plates, fingerpost signs, etc.

Trail Proposer Details

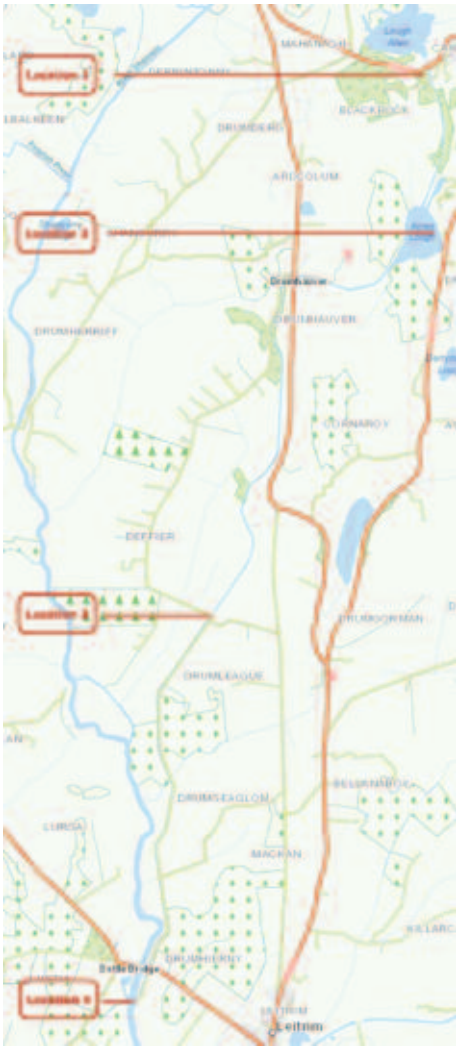
Name:
Address:
Contact Number:

Trail Details

Address/Location:
Grid Reference:
Trail Name:
Length: **(in kilometres)**
Classification: **(Defined, Wilderness)**
Grade: **(1 to 3)**
Duration: **(in hours)**
Portages: **(number and length of each)**
Waterway Features and Hazards: **(weirs, rapids, stoppers, tidal races, etc.)**
Description: **(outline the personality of the trail, and the target users)**

Appendix 6: Trail Development Planning Templates

The following is a suggested guide to assist in the design, planning and technical detailing of canoe/kayak trails. This template will assist the trail developer to respond to the needs of the trail user, through effective trail design and infrastructure provision.



The trail developer should choose the level of detail required for the trail development process. For example, if a contractor is to be appointed to undertake the physical development of a trail, sufficient information should be formally assembled and presented so as to enable the contractor to accurately tender for the work, and undertake this work with the minimum requests for additional information. If relatively minor physical work is required on the trail then less detail is required.

Good practise in trail design includes the section-by-section analysis and design of the trail, its location, infrastructure signage requirements and so on. These trail sections are often delineated according to features such as the start of a trail at a lake or headwater, access to the trail from a road, or – (as in the example alongside) – the end of the canal trail and the commencement of the river trail.

Within these larger sections there may be further sub-sections. These are often determined by access and egress opportunities (as in the map alongside), whereby the sub-section *Location 1* to *Location 2* refers to the first two access and egress points on the proposed trail.

Trail Research and Infrastructure Template

The following is a sample of a sub-section analysis of a trail. The section in question is *Location 1* to *Location 2*, as outlined in the adjacent map.

Lough Allen to Carrick-on-Shannon Canoe/kayak Trail

Section 1: Lough Allen to Battlebridge Lock (6km)

- Location 1 – Drumshanbo Lock
- Location 2 – Acres Lake
- Location 3 – Drumleague Lock
- Location 4 – Battlebridge Lock

Element	Comment	Grid Ref., Photo No.
Location 1 to Location 2	Drumshanbo Lock to Acres Lake.	
Sub-Section and Distance	Commencing immediately above and below Drumshanbo Lock.	Aerial Photograph.
Signage:		
• **to the waterway**	• A1: Fingerpost sign at Drumshanbo town Y junction (at Main Street & Church Street). • B1: Fingerpost sign at the Y junction on Church Street. • C1: Roundabout fingerpost sign pointing West on the R208.	Photo A1. (N54.02.542, W008.02.57) Photo B1. (N54.02.519, W008.02.287) Photo C1. (N54.02.526, W008.02.286) Photo No 4. (N54.02.524, W008.03.190)
• **on the waterway**	• D1: Trailhead entry sign to proposed car park and map-board.	
Trailhead	A Waterways Ireland manned lock with sufficient car parking for circa eight cars, and shower, toilet, clothes washing and litter disposal facilities.	Aerial Photograph.
Egress and Access Issues **Infrastructure Requirements** **Channel: (width, visibility, flow, egress, navigation)** **Resources: (accommodation, dining, transport, etc.)**	• At the Drumshanbo lock car park there is access to the lake via the jetty, however it is not possible to access the canal on the canal side (downstream) of the lock. • The car park South of the lock/bridge on the river's right is suggested as the canoe/kayak trail car park. This car park is currently gated and has space for circa ten vehicles. • A descent to the canal bank is required through the provision of a wooden stairway, and the positioning of a canoe/kayak lowering stanchion. Both of these features require breaks in the existing fence at this point.	Aerial Photograph and No's 1. & 2. No 4. (N54.02.518, W008.03.21) No 5.
	• 4 Fingerpost signs (three of Type 1, one of Type 2). • 1 Map-board sign. • Descent stairway (Type 5a or 5b). • Canoe slide and stanchion (Type 4b or 4f). • Jetty/canoe steps (Type 2b or 2c).	N54.02.519, W008.03.16

Element	Comment	Grid Ref., Photo No.
Channel: (width, visibility, flow, egress, navigation)	The channel immediately downstream of the lock is relatively narrow and wooded, and has limited access to the steep bank (circa 1.3m high). There is no water flow, and visibility of other water users is restricted but sufficient.	N54.02.520, W008.03.10
Resources: (accommodation, dining, transport, etc.)	There is dining, accommodation, and other tourism facilities and activities available in the town of Drumshanbo.	No 6. & No 7.

The key components in this template (as presented in the left hand column of the above table) are:

- **Signage: (there are two signage elements)**
  1. Identifying the access and egress points for the user from the land, in order that they can make their way to the waterway.
  2. Identifying the access and egress points to users who are on the waterway.

- It is important that the signage on the waterway is kept to a minimum in order to retain the authentic and wilderness feel of the trail. This signage should be consistent and support the brand and personality of the trail.

- **Trailhead:**
  Identify the current and required infrastructure resources at the trailhead. Note the needs of group users, and their need for trailer and minibus access to the trailhead.

- **Egress and Access issues:**
  The visibility and appropriateness of the access and egress points, with particular reference to the novice and young participant where this is appropriate (placid water, Grade 2 trails).

- **Infrastructure Requirements:**
  A synopsis of the infrastructure required for this sub-section of the trail.

- **Channel:**
  Comment on the width, visibility, flow, egress and navigation issues for this part of the trail. This information will inform subsequent information and publicity material on the trail, and will also guide any decision making on safety signage or inappropriate water/wind levels.

- **Resources:**
  Identify nearby available supporting resources, such as accommodation, dining, transport, etc.

Notes

Notes

national trails office
An Irish Sports Council Initiative

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