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Clinch River Access Points Design Guidelines

PROJECT TEAM

Elizabeth Gilboy
Director

Lara Browning
Landscape Architecture Project Coordinator

Jen Jessup
Landscape Architecture Designer

Harley Walker
Landscape Architecture Intern
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Arnett Muldrow
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The Clinch River, located in Southwest Virginia, meanders over 300 miles from its headwaters in Tazewell County to its confluence in East Tennessee. In addition to its natural and scenic beauty, the Clinch is one of the greatest hot spots for biodiversity in North America. It has more species of endangered and rare freshwater mussels than anywhere else in the world. The river is home to more than 120 species of fish and about 43 species of freshwater mussels, which are the most endangered group of animals in the United States.

The Clinch River Initiative, an effort to build local economies in the coalfields of Southwest Virginia, has prioritized developing the Clinch River as a blueway in an effort to bring outdoor recreation and tourism to the region. Such blueways are an outgrowth of the land-based greenways concept, connecting the region by way of the watercourses that knit communities together. Increasingly, blueways are becoming an important recreational and marketing component to the region, and more importantly, emphasize the importance of our water resources.
PROJECT DESCRIPTION

The Community Design Assistance Center was tasked with developing general design guidelines for access points along the Clinch River, creating a conceptual design for the access point at the Cleveland Ball Park as a pilot site, producing a design theme/aesthetic for signage, and generating design concepts for various types of signage for access point sites, such as information kiosks, environmental education signage, and directional signage. CDAC worked closely with a stakeholders group to develop concepts and guidelines which are discussed in further detail in the following report. The Appendix also contains many resources that will aid the community in moving forward with developing access points along the Clinch River.
Section 1: Design Guidelines

1.1 Locating Access Points

Locating access points along the Clinch River should be considered from a regional perspective.

Locating access points along the Clinch River should be considered from a regional perspective. Each access point should be located approximately a two hour or less float from the next upstream and downstream access points and accommodate a variety of users with different abilities and equipment (tubes, kayaks, canoes). Some access points may have full amenities such as parking, turn-arounds, etc. (see pages 22-23) while others may only have pedestrian access (see pages 35-36).

The following information provides guidance on aspects that should be taken into consideration when siting an access point along the Clinch River. The goal is to provide a framework for the location and function of the access points while also providing guidance for aesthetic, cohesive, and consistent designs.
1.1 Locating Access Points

1.1.1 Town and Cultural Areas

When locating an access point, local town, community, and cultural resources should be considered with the hope of drawing visitors off the river momentarily and into the community.

Locating access points near towns and culturally significant areas will enhance the user’s experience and contribute to the local economy. When locating an access point, local town, community, and cultural resources should be considered with the hope of drawing visitors off the river momentarily and into the community.

1.1.2 Wildlife Corridors

When locating an access point, riparian corridors should be preserved.

Forest ed riparian areas, which are vegetated areas along river/stream banks, form a natural corridor along waterways that is important to many wildlife and fish populations. Intact riparian corridors provide biodiversity protection by serving as dispersal routes between natural landscapes for migration. Without these corridors, wildlife populations may decline and diversity may be lost. When locating an access point, riparian corridors should be preserved. Any buffer within a corridor should be kept to a 100’ minimum on both sides of the waterway. When it is necessary to build infrastructure, such as a launch/ramp within the 100’ buffer, minimize the width of the opening along the waterway to 20’. If possible, build within existing recreational access sites to minimize damage within the riparian corridor.

Section 1: Design Guidelines

1.1 Locating Access Points

1.1.3 Riparian Buffers and Soil/Erosion Control

Placing recreation infrastructure and features such as restrooms and parking away from the riparian buffer zone will reduce erosion and protect the water quality of the Clinch River. Use pervious surfaces when possible and restore eroding stream/riverbanks adjacent to access points.

Placing recreation infrastructure and features such as restrooms and parking away from the riparian buffer zone will reduce erosion and protect the water quality of the Clinch River. If building within a riparian buffer, develop a “light” footprint that will minimize habitat destruction and degradation. In addition to the protection of riparian buffers, the use of pervious surfaces will reduce runoff and thus protect soil and control erosion. When developing within or close to riparian buffers, use erosion and sediment control measures such as silt fences, filter strips, and temporary vegetation cover, to prevent sediment from entering wetlands or open water. When necessary restore eroding stream/riverbanks adjacent to the river access point. If not addressed, these banks will continue to erode and affect the health of the river and potentially threaten the structural integrity of the launch/ramp. Riparian buffers aid in filtering stormwater runoff, reducing flooding of developed areas, and preventing erosion problems. They also provide shade for streams and help rivers maintain a healthy aquatic life population. Streams lacking shade will suffer from higher water temperatures and negatively impact aquatic organisms.

1.1.4 Wetland Protection

All planning for river access points should include the delineation of wetlands and streams, which should be avoided to protect these sensitive areas and their public and ecological functions.

Wetlands provide many human health and ecological functions, including water purification, discharge/recharge of minimum baseflows for streams and rivers, shoreline protection from wave action and storm damage, buffering from the effects of flood events on nearby lands, and wildlife and fisheries nursery habitat. All planning for river access points should include the delineation of wetlands and streams, which should be avoided to protect these sensitive areas and their public and ecological functions.

1.1 Locating Access Points

1.1.5 Native Plants

Native plant use should be promoted within access points.

Native plant use should be promoted within access points. Prior to construction it is important to control invasive plant species. Non-native plants prevent development of more diverse, native and more beneficial plant species. Before introducing a new access point to an existing site, survey the area for invasive plants. The most common control methods for invasive plants are hand-pulling and cutting/mowing. The best method to use is often dependent on a plant’s biology or the conditions of the site. Herbicide use is never a recommended method along rivers because it can cause the destruction of aquatic and animal life. When using herbicides, use only EPA–approved products. During and after construction, soil disturbance should be kept at a minimum. Provide temporary cover of exposed soils to help prevent invasive plants from establishment.

During construction, do not dump water from another water source into the waterway. This may contribute to introducing non-native and potentially invasive organisms into this body of water. If habitat restoration is necessary, plant native trees and shrubs.

* For more information on invasive species control options refer to “Plant Invaders of Mid-Atlantic Natural Areas” available at: [http://www.maipc.org](http://www.maipc.org) or “Citizen’s Guide to the Control of Invasive Plants in Wetland and Riparian Areas” at: [www.dnr.state.md.us/irc/docs/00015763.pdf](http://www.dnr.state.md.us/irc/docs/00015763.pdf).

* For more information on native plants in the Clinch River Valley Region refer to link: [http://www.dcr.virginia.gov/natural_heritage/documents/mtn_nat_plants.pdf](http://www.dcr.virginia.gov/natural_heritage/documents/mtn_nat_plants.pdf)
1.1 Locating Access Points
1.1.6 Viewshed Protection

When introducing a new access point, it is recommended to plan this location during the “leaf-off” season to ensure minimal viewshed disturbance.

Viewshed protection is an important aspect of designing access points. When introducing a new access point, it is recommended to plan this location during the “leaf-off” season to ensure minimal viewshed disturbance. When available, utilize existing recreational sites for new access points. This minimizes the disturbance to the natural beauty along the Clinch River. When placing signage (interpretive or directional), it should be visible but kept to a minimum as to not be cluttered. Recreational features should be designed to fit within the context of the site.

1.2 Signage

Signage along the Clinch should maintain a consistency of materials and character. Before further developing the signage, the Arnett Muldrow branding report document should be referenced.

The Clinch River Valley Initiative (CRVI) is working extensively with the marketing firm Arnett Muldrow to create branding material for the Clinch River Valley. This brand will promote the Clinch River Valley as a regional tourist destination in Southwest Virginia. The signage along the Clinch River and at each access point should be consistent with the brand created by the CRVI and Arnett Muldrow team. Signage along the Clinch should maintain a consistency of materials and character. Before further developing the signage, the Arnett Muldrow branding report document should be referenced. This document is available through the CRVI. It contains a more detailed description regarding color selection, font type, and provides guidelines to assist in the implementation of the Clinch River regional brand. All design decisions should reference the branding report before being implemented.

A pallet of materials to be used in signage was chosen as a result of a study identifying the primary building materials found along the Clinch. Railroads and brick buildings, found in downtown areas, were the main identifying elements. The result of the study was a materials pallet of wood and metal.

Four different types of signage were determined as being needed in different scenarios along the Clinch River area: directional signage, informational kiosks, interpretive signage, and river markers. Using the same pallet of materials for all four types of signage provides a set of signage that creates a sense of continuity along the entire Clinch and supports the Arnett Muldrow branding effort.

The following pages include examples of the final conceptual designs for signage.
Section 1: Design Guidelines

1.2 Signage
1.2.1 Directional Signage

The directional sign developed by Arnett Mulrow for the Clinch River communities was adopted into the access point signage; however, its detailed metal post was replaced with a wooden and metal alternative that fits better outside town. The directional signage also adopts the language of symbols developed by Arnett Mulrow for representing various types of destinations.
1.2 Signage
1.2.2 Informational Kiosks

Three variants of the informational kiosk were designed: double-sided, arc-roofed, and angle-roofed. Each design achieves the desired degree of consistency within the set, but by providing three options, information can be displayed in a number of ways and at different sizes. In the case of the kiosks, consistency is created not only with material, symbols, and color, but also with the profile of the Clinch River which is located on each kiosk. This diagram of the Clinch acts as a symbol unifying the kiosks and provides the opportunity to include a “you are here” feature.
Section 1: Design Guidelines

1.2 Signage

1.2.2 Informational Kiosks

Angle Roof Kiosk
1.2 Signage

1.2.3 Interpretive Signage

Interpretive signage is used as a tool to convey information where an entire kiosk is not necessary. Two variants of interpretive signage were designed with the same guiding factors as the kiosks. The two variants include a portrait and landscape option.
Section 1: Design Guidelines

1.2 Signage

1.2.4 River Markers

River markers were created in response to the potential difficulty of finding an access point from the water while on an unfamiliar river. Each marker would have a mile point indicating where you are at on the river. This provides an emergency feature during an accident and creates ease of navigation along the river. Markers using the symbols developed by Arnett Muldrow should be located at the river’s edge to notify canoeists that an access point is coming up. These markers should be located at least 100’ before the upcoming access point on trees where possible and on posts where there are not any appropriately located trees. Areas around these markers must be maintained to preserve clear views of the signs from the river. Markers should also be placed at the access point to designate its location.
Section 1: Design Guidelines

1.3 Parking

Parking at an access point should accommodate a minimum of 5 spaces if there is potential interest in applying for grant funding from the Department of Game and Inland Fisheries.

Parking at an access point should accommodate a minimum of 5 spaces if there is potential interest in applying for grant funding from the Department of Game and Inland Fisheries. When applicable, sites that can accommodate small power boating access should accommodate at least 10 parking spaces. Each public access point should have space for at least one large truck or van with a boat trailer to enter and exit the location safely and without difficulty. A complete circle turning radius is desirable but when not possible, a location that will allow safe trailer turning under careful driving is acceptable.

Parking surface materials should be pervious such as gravel, stonedust, or permeable pavers to minimize runoff and protect waterways.

Source: “Grants to Localities Program for Public Boating Access Facilities” Department of Game & Inland Fisheries.
1.4 Amenities

*When feasible, bathrooms, trash cans, and seating areas are desired*

Amenities at access points will vary depending on the type, space, and location of the particular access. When feasible, bathrooms, trash cans, and seating areas are desired. Furnishings, such as trash cans and seating, should be flood proof. As shown in the images below, furnishings that are permanently secured are recommended to prevent loss or damage during a flood event. The use of environmentally-friendly materials when constructing/designing amenities is recommended to prevent toxic pollution to soils and water.
Section 1: Design Guidelines

1.5 Trails

When locating a trail within an access point, plan the route of the trail to minimize impacts to sensitive areas such as riparian corridors.

Trails along waterways are desirable and a great recreational feature for connecting community assets such as parks, downtowns, and other river access points. When locating a trail within an access point, plan the route of the trail to minimize impacts to sensitive areas such as riparian corridors.

Depending on the location of the access point, certain materials and construction techniques may be applicable. If designing an access point within an environmentally sensitive area, gravel or boardwalks are recommended. For trails in other locations, such as those within a park area, asphalt may be appropriate to accommodate ADA handicap accessibility.
1.6 Maintenance

A maintenance plan should be developed for each access point, and each access point should be regularly maintained and patrolled to prevent illegal activity and promote safety for the area.

A maintenance plan should be developed for each access point, and each access point should be regularly maintained and patrolled to prevent illegal activity and promote safety for the area. It is recommended that the hours of operation should be determined on a locality-to-locality basis for public access points unless the site is located on private land where hours would be up to the owner’s discretion. In some locations, a locked gate in the evening time may be desired. No loitering or overnight camping should be allowed unless there is a designated separate camping area adjacent to site.

Trash removal, mowing, and limb clearing should be included within the maintenance plan of each site. Limb clearing, especially where river markers are located, will be necessary to maintain visibility of the marker from the river.
Section 1: Design Guidelines

1.7 Public Access Easements

*It is recommended that access points be located on public land when possible. All public access easements secured in cooperation with private landowners should be recorded.*

It is recommended that access points be located on public land when possible. In some instances, however, access points may need to be sited on private land if the landowner is willing to agree to a public access easement. All public access easements secured in cooperation with private landowners should be recorded. Easement agreements should include clear terms and guidance related to development activities, maintenance, and routine site monitoring. Each landowner that agrees to grant a public access easement should have a clear and concise understanding of what they are agreeing to provide for the public benefit, and the easement should provide assurance that the site will be appropriately developed, patrolled, and well maintained. Contact CRVI for a sample land use agreement for access point development. Copies of recorded easements are available by request.

Source: “Suggested Best Practices for Public Access Development along the Clinch River.” Clinch River Valley Initiative
1.8 Locating Launch/Boat Ramp

When locating a boat launch/ramp, it is recommended to avoid environmentally sensitive areas such as fragile riparian habitats. The site should have sufficient space for the boat launch along with space for parking.

When locating a boat launch/ramp, it is recommended to avoid environmentally sensitive areas such as fragile riparian habitats. The site should have sufficient space for the boat launch along with space for parking. A naturally gentle slope along the river is desirable where the site has minimal exposure to winds and heavy currents. This will minimize erosion and exposure to elements. If this is not possible, consider creating a vegetative or other type of buffer to provide protection from the elements.

Natural features, such as gently sloped riverbanks, rock outcrops, and firm sandy or rocky beaches provide the simplest and most cost-effective sites for a launch, requiring little or no construction. Using these existing natural sites will avoid significant disturbance to a site.

When there is no alternative, use low impact design such as boardwalks and geotextile mats in environmentally sensitive areas to reduce or eliminate any grading needed to create an access point. Rather than cutting ramps into the river’s bank, access points in sensitive areas should use an approach that leaves a small footprint. A raised wooden boardwalk will provide access to the river across uneven ground with little impact on the surrounding environment. It will also allow small animals to pass beneath the walkway without being stepped on by portaging kayakers. Access to the water itself should be in the form of a six foot wide wooden stair case that steps down to the water’s edge. The bottom step should sit 9” to 24” above the water’s surface.
Section 1: Design Guidelines

1.8 Locating Launch/Boat Ramp

This minimal access point design will provide few amenities compared to other access points along the Clinch. It will include the wooden boardwalk to access the water’s edge, a picnic table, and a rack to hold canoes and kayaks.

Alternately, when there is an existing launch, it is always best to reuse it if possible. Widening (if necessary), resurfacing, and stabilizing the river bank’s edge will allow for minimal destruction to the riparian buffer.

Water level is also important to consider when locating the boat launch. Ideally, launches for non-motorized boats (canoes/kayaks) should be between 9” to 24” above highest expected water level. This allows canoes and kayaks ease of entry into the water. It is recommended that only non-motorized boats be allowed on the Clinch in some areas. Access points should be designed for entry of a motorized boat if possible in case of emergency. When an access point is not located within a portion of the river that contains a rare or vulnerable mussel habitat, small motorized boats would need a minimum of 3’ water depth at the end of the ramp during mean low water, though 4’ depth is more desirable. Ramps placed in flowing rivers should enter the river at an angle downstream (see diagrams on following page) to reduce the sideward push on the boat as it is being placed into the water.

Source: “Building Boat Ramps” Department of Game & Inland Fisheries
Section 1: Design Guidelines

1.9 Launch

*Environmentally-friendly materials should be used for launches/ramps to minimize erosion and impact water quality.*

Ideally, the size of a non-motorized boat launch/ramp is at least 5’ in width, preferably 6-12’, and at least 25’ in length to allow paddlers “dry” access for the entire length of a boat. The slope should not exceed 8% when possible. Supports such as handrails or ropes are not required; however, they can help paddlers keep their balance during put-in and take-out.


If in an appropriate location, where there are no rare or imperiled species, the recommended width for a small motorized boat launch/ramp is at least 12’ in width, preferably 16’. The slope should be 12-15% with the ramp extending into the turning and staging area far enough for the trailer wheels to clear the sloped section of the ramp before the towing vehicle’s pulling wheels leave the ramp.

Source: “Building Boat Ramps” Department of Game & Inland Fisheries

Environmentally-friendly materials should be used for launches/ramps to minimize erosion and impact water quality. Pervious materials such as geomat cells, pervious concrete, or compacted gravel are recommended for non-motorized boat launch.

It is not recommended that motorized boats be allowed on the Clinch, however, if suitable for its location a more solid surface is recommended for a small motorized boat launch. Concrete is a suitable material; however, to provide a more permeable surface concrete plank construction is recommended. This allows for ease of construction and maintenance.

Diagram of canoe/kayak launch, plan view

Diagram of small motorized boat launch, plan view
Section 1: Design Guidelines

1.10 Accessibility

When locating an access point, ADA handicap accessibility should be considered. When a site naturally lends itself to being accessible, based on site elements such as the Cleveland Ball Park, ADA accessibility is desired.

When locating an access point, ADA handicap accessibility should be considered. When a site naturally lends itself to being accessible, based on site elements such as the Cleveland Ball Park, ADA accessibility is desired. The parking area should provide one handicap access route to the launch.

American Disabilities Act Accessibility Guidelines (ADAAG) require that boat launches be equipped with at least one accessible route to boat launches that complies with ADAAG standards for:
- Location
- Width
- Passing space
- Surface slope
- Level changes
- Egress
- Areas of rescue assistance

The access route’s surface, grade, width, and cross slope to launch need to be as accessible as the location will allow. Surface materials should be firm, such as compacted gravel or pervious concrete. It should be even and level (not exceeding 8.33% slope or 2% cross slope) and without gaps or interruptions, and the route should be clearly marked.

Transferring from the launch to a canoe/kayak can be difficult. It is recommended that there be an area adjacent to the loading area, including in the water up to 12” deep, that is level, stable, and minimum of 60” x 60”. Other techniques to facilitate transfer from the launch area into a boat include:
- Surface textures on the launch
- Handles, grab bars, or support ropes
- A transfer step that assists paddlers who have difficulty bending or squatting

More information on ADA Accessibility Guidelines is available online at http://www.access-board.gov/guidelines-and-standards/recreation-facilities/outdoor-developed-areas/draft-final-guidelines and may be downloaded as an Adobe PDF file.
Section 1: Design Guidelines

1.11 Conclusion

The Clinch River is one of the most biodiverse river systems in North America. The communities along the Clinch should build upon its unique cultural and ecological assets to distinguish and create new possibilities for environmental education and entrepreneurship opportunities. These access point guidelines are intended to create a cohesive design aesthetic, protect the river’s rare species, and provide general instruction on implementing access points along the Clinch River. Creating a cohesive design aesthetic can strengthen the Clinch River Valley regional branding strategy to market themselves on a national scale. These guidelines may also help in the effort to obtain funding and create future opportunities along the Clinch.
Section 2: Access Point Pilot Designs

2.1 Cleveland Ball Park Access Point Concept

The existing ball park in Cleveland is an ideal location for an access point. Current amenities available at the park are restrooms, a picnic shelter, parking, and a drop-off near the river with vehicular circulation that will accommodate a full circle turning radius for one truck/van and boat trailer. Locating an access point in an existing recreational area minimizes the amount of construction needed and the damage to sensitive environmental areas. At this particular site, the mowed grass along the riverbank/riparian corridor should be replaced with plant material that is found in the local riparian corridors to restore habitat and minimize runoff and erosion.

Directional signage is added along the access road into the park to inform users of the circulation patterns. An educational kiosk with information about the Clinch and the ecology of the site is located next to the trail and launch area. All signage in the area is to maintain a consistency of materials and character. In addition to the five parking spaces located at the picnic shelter, additional handicap accessible parking is added in two locations: 2 truck/boat spaces are located closer to the launch area and 12 additional car parking spaces further along the access road. These parking areas will be connected with a hard surfaced fitness trail that runs through the park. Parking surface material should be pervious such as gravel, stonedust, or permeable pavers to minimize runoff and protect the waterway.

Additional amenities added at the access point are picnic tables and trashcans. These furnishings should be flood proof. As shown in the images on the following pages, we recommend using furnishings that are permanently secured to prevent loss or damage during a flood event.

This particular launch is proposed to accommodate a boat trailer, such as those used by river outfitters. The ramp is to be a minimum of 12’ wide with a slope of 12-15% (See page 25). The ramp should extend into the turning and staging area enough for the trailer wheels to clear the sloped section of the ramp before the towing vehicle’s pulling wheels leave the ramp. The ramp should be concrete plank to allow for permeability and ease of construction/maintenance.

The following pages include the access point concept for the Cleveland Ball Park site and a perspective of the access point with examples of signage and site elements.
2.2 Cleveland Campground Access Point Concept

The proposed campground on the former Cleveland Elementary School site is planned to support outdoor recreation on the Clinch River. The site currently has no amenities that allow access to the river and the construction of a new access point at this site would be restricted by several environmental constraints. A river access point at the campground must be located in the riparian corridor. Special measures need to be taken while designing and constructing the access point to reduce the ecological impact it will have in such an environmentally sensitive area.

The river access point at the campground site is designed with a minimal approach that will both reduce the size of its footprint on the riparian corridor and reduce the amount of grading needed during construction. Rather than cutting a ramp into the river’s bank, this access point will be built as a wooden platform and minimum 6’ wide staircase leading down to the water (see ideas on following page). This wooden structure would be raised a few inches off the ground so that it can cross over uneven ground and have less impact on the soil beneath it than an asphalt path would. Having a slightly raised path in the riparian corridor also allows small critters and insects to pass beneath the walkway without potentially being stepped on by portaging kayakers.

A roughly 6’ change in grade marks the floodway that runs parallel to the Clinch River. This is a major obstacle that prevents vehicles from entering the riparian corridor and reaching the river’s edge. Canoeists and kayakers must portage from the river access point to either their campsite or public parking further into the campground site.

This minimal access point design will include few amenities compared to other access points along the Clinch. It will include wooden stairs to access the water’s edge, a picnic table, and a rack to hold canoes and kayaks. Directional signage is located along the access road in the campground directing people to a path leading to the access point. An educational kiosk is located next to the entrance of the path and will include information about the Clinch River. Two river markers will be located on trees at the river’s edge. These markers function as signals that help canoeists find the access point on the river. One marker is located 100’ up-stream from the access point to notify users that it is coming up on the right and a second marker is located at the actual access point.

The following pages include the access point concept for the Cleveland campground and a perspective of the access point.
CLEVELAND CAMPGROUND ACCESS POINT CONCEPT

PERSPECTIVE OF ACCESS POINT
Section 3: APPENDIX

3.1 Appendix: Online Resources


“Citizen’s Guide to the Control of Invasive Plants in Wetland and Riparian Areas” www.dnr.state.md.us/irc/docs/00015763.pdf

“Grants to Localities Program for Public Boating Access Facilities” Department of Game & Inland Fisheries http://www.dgif.virginia.gov/boating/access/grants/

“Plant Invaders of Mid-Atlantic Natural Areas” http://www.maipc.org

3.2 Appendix: Reference Materials

“Meherrin River Trail – Launch Design Guidelines” 36

http://www.dep.state.fl.us/gwt/community/PDF/
Logical%20Lasting%20Launches%20guide.pdf

“Suggested Best Practices for Public Access Development along the Clinch River.” Clinch River Valley Initiative
http://clinchriverva.com/
DRAFT: Meherrin River Trail – Launch Design Guidelines

1. Meherrin River Overview

The Meherrin River, located in Southside Virginia, meanders over 100 miles from its headwaters in Lunenburg and Mecklenburg counties to its confluence at the Chowan River, below Emporia. The Brunswick County segment is a designated State Scenic River (35 miles). The segment in Mecklenburg and Lunenburg was studied in 2012 and is recommended for designation (17.8 miles). In addition to its natural and scenic beauty, the report documents that for many years, the Meherrin supported local trade and transportation. Although the river is small in size, it could accommodate small canoes and was highly used by Native Indians and early settlers to the region. Native American sites, some old mills and fords, and a large plantation, Elleson, are found within the river corridor.

Development of the river as a water trail provides the opportunity to showcase the area’s rich history and natural assets, and increase recreation venues for both residents and visitors. In 2009, the Meherrin River Trail Committee was organized, and work began to assess options for promoting river-based activities such as flat-water canoeing, kayaking, fishing, and wildlife viewing. The committee completed an inventory of existing and potential new public access sites, campsites, and day-use areas. Although 16 sites were identified as having potential for new river access (see Figure 1 below), only one new access at Whittle’s Mill has been constructed. Several other are under consideration. (For a list of the 16 sites see Attachment A)

Figure 1: From Meherrin River Blueway Concept Plan July 2009, p.5

The following report was compiled to highlight the current status of the water trail, provide a summary of best practices and legal requirements related to access design, and include examples and resource links to help local planners move forward with the design and construction of safe, convenient, and accessible canoe/kayak launch sites.

II. Meherrin River Trail Access

The main constraint to developing the Meherrin has been a lack of safe, convenient, managed access sites. Although many paddlers launch in normally at VDOT bridges, some of these have significant challenges including limited shoulders for parking, poor sight lines for on-coming traffic, steep slopes, unstable footing, and thick vegetation during the growing season with poison ivy, ticks and cattails.

A. General Site Design Considerations for the Meherrin

Ideally new water access sites should be designed in areas without heavy flow, erosion, exposure to elements, heavy boat traffic, or fragile riparian habitat. Below are site conditions specific to the Meherrin that should be taken into account when designing a case:

1. River classification - suitable for recreational paddlers, primarily gentle riffles and flatwater with a few short Class 1 rapids depending on water levels

2. River flow and water levels – some sections of the Meherrin are only navigable during spring and early summer, especially during drought years; the section above Whittle’s Mill is generally navigable throughout the paddle season due to the backwater from the dam. The river also tends to be flashier with significant increases during moderate rain events (For more information see Attachment B)

3. River terrain and slope: steep slopes occur along significant portions of the river. The Scenic River Report documents the largest bluff is 100 feet high (Brunswick section) with most bluffs ranging in height from 15 to 60 feet.

4. River dimensions: geomorphology: river bed and banks consist of sandstone substrate with some gravel bars, and an occasional naturally occurring rock ledge or outcrop. banks are steep and in some areas are 10-20 feet from the top of the bank to the water level. Variable width, in some areas over 150 feet, the river is as narrow as 50-60 feet across east of Roanoke River; the river widens and in most areas is 70-100 feet wide.

5. Safety Hazards: there are two dams on the Meherrin that must be portaged. Whittle’s Mill Dam and Emporia Dam, otherwise there are limited hazards to navigation. The major safety concern is debris jams at bridge abutments, especially at the Roanoke bridge where huge logjams occur are in need to portage.

6. Cost and sustainability: a low cost, low impact design option with minimal maintenance requirements is preferred by local jurisdictions, since there are limited funds available for water trail development and management.

†Meherrin Scenic River Report, Brunswick Segment, prepared by Department of Conservation and Recreation, December 2012
B. Existing Facilities

Due to the terrain, river dimensions, flow and other considerations, two types of canoe/kayak launch facilities have been found to be effective on the Meherrin: 1) at Whittle’s Mill Park, concrete steps and slide have been developed above the dam, and 2) in Emporia, boat ramps have been constructed on the Meherrin Reservoir and at Meherrin River Park.

Whittle’s Mill: Concrete Steps and Boat Slide

The Town of South Hill constructed the launch in 2009, and it has provided reliable access through several annual high-flow, low-flow cycles with minimal damage from changing water levels; annual maintenance is conducted by town staff to clean up debris and sediment, prior to the start of the paddling season. A stable and fairly level surface exists from the parking area to the top of the steps.

Numerous sites across the country have experienced similar needs, and have found that concrete structures are particularly effective in providing access along steep shorelines. As in the case of South Hill’s launch, they can be supplemented with boat slides to provide easy transport of boats to water. They are durable and easily maintained, and offer access at a range of water levels. 1

Although not ideal, this design complies with ADA and DGRF requirements for at least one accessible route to the launch area to make the site more accessible for paddlers with disabilities; assistance would be needed to maintain the transition from the top of the steps to the water.

Emporia Boat Ramps: Meherrin Reservoir and Meherrin River Park

Two public boat ramps are located on the lower stretch of the river near the City of Emporia. One is located above the city, on the 210-acre Emporia Reservoir in Greenville County. A concrete ramp at the water filtration plant allows access to the reservoir. A second concrete ramp (at Emporia) is located approximately one mile downstream, within the City of Emporia, at the Meherrin River Park. The ramp is steep, and can be covered with silt and mud depending on water levels from the dam, or flooding. Both sites were constructed with DGRF grant assistance.

C. Future Access Sites

Since 2009, interest in river recreation has grown, due in part to outreach efforts (including organized boat trips) coordinated by Upper Roanoke, a program of the Roanoke River Basin Association. An interactive mapping tool is available on the RRB-Upper Roanoke website to help paddlers in trip planning. The website identifies launch sites at five VDOT bridges over the Meherrin: (State Routes 712, 635, 636, 637, and 138), in addition to Whittle’s Mill. The website also provides information on safety issues and access challenges like steep slopes at launch locations (see: www.upperroanoke.org).

The Meherrin Committee has identified four locations for improving access and launch facilities in the near-term, as well as two rest areas that will only be accessible from the river. The status of these projects is as follows:

1. Wallace’s Bridge: committee member is currently monitoring VDOT construction of new launch, to add access if feasible, or negotiate with adjacent property owners; need to determine manager (Lunenburg County does not want to own or manage the site)
2. Saffold Bridge: need to negotiate with adjacent land owner for purchase or easement (VDOT right-of-way no longer available); need to determine if Mecklenburg County is interested in managing the site; need funds for design and construction
3. US Route 1: conditional approval letter has been received from VDOT; SPDC is assisting Mecklenburg County with development of a sketch map/site plan, a management agreement will need to be signed by the county; need funds for design and construction
4. SR 46: Brunswick County has expressed interest in negotiating with adjacent land owner for purchase of easement (VDOT right-of-way no longer available); need funds for design and construction
5. TH: potential rest stop, need management agreement with Roanoke River Rails-To-Trails (property owner)
6. Fort Christmas: potential rest stop, need management agreement with Brunswick County

Although development of the above sites will improve access considerably (see Figure 2), additional work will still be needed to extend the trail east to Emporia. In addition, new sites will be needed to reduce the length of individual segments, and realize the vision of a water trail that provides access for families, inexperienced paddlers, or others looking for a short afternoon adventure, as well as longer more challenging excursions.
III. Accessibility Guidelines for Outdoor Recreation Facilities

A. Designing Universal Access - Legal Requirements

The Americans with Disabilities Act (ADA) is a comprehensive civil rights law that prohibits discrimination on the basis of disability. The law requires that newly constructed and altered state and local government facilities, and commercial facilities be readily accessible to, and usable by, individuals with disabilities. Federal agencies are governed by the Architectural Barriers Act of 1968 (ABA) and Section 504 of the Rehabilitation Act of 1973 (Section 504) which require that newly constructed or altered facilities that are developed on federal lands or with federal funds be accessible.

In 2002, the Access Board issued accessibility guidelines for newly constructed and altered recreation facilities as a supplement to ADA Accessibility Guidelines (ADAAG). The guidelines include boating facilities such as boat slips, piers, ramps, transition plans, handrails, floating docks, and launches. In addition, ADAAG requires that at least one accessible route connect accessible buildings, facilities, elements, and spaces on site.

The route from the parking area to the launch facility, defined as an "Outdoor Recreation Access Route" must comply with ADAAG provisions for the location, width (minimum of 36 inches), passing space, hand room, surface, slope (maximum of 1:12 or 8.3%), changes in level, doors, eggers, and areas of rescue assistance; areas of otherwise qualified by specific provisions outlined in the ADAAG.

There are no specific standards that address hand carry crafts (canoes, kayaks, etc.) launching and landing sites at the water’s edge. However, at and adjacent parking areas, restrooms, picnic areas, and the paths that connect these facilities to each other and to the water side launch areas must be addressed.

B. Best Practices for Hand Carry Shoreline Access

For hand-carry public access sites, only the access route and not the actual shoreline area falls under ADAAG. However, best practices have been developed over the past several years that have been proposed through the American Canoe Association (ACA) and the ACA’s Adaptive Paddling Program and publications such as “Canoeing and Kayaking for People with Disabilities.”

Based on the advice of noted experts, the best hand-carry shoreline landing areas are those that have a firm and stable surface, and are flush with the water. A minimum of 16 to 22 feet is recommended at the water’s edge, so that a tandem canoe or kayak can be turned with its side facing the shore for slower transfer into and out of the water, whether standing or from a wheelchair.

Figure 3: From: “Developing Water Trails in Iowa: A practical design guidelines and templates for planning, site design, signage and construction.” Figure 4.3, Universal Utility Section p.16

It should be noted that over the past few years, accessibility guidelines for outdoor developed areas have been the subject of a Proposed Rulemaking to update the Architectural Barriers Act (ABA). On June 30, 2007, the Access Board issued a Notice of Proposed Rulemaking (NPRM) to establish accessibility guidelines for camping facilities, picnic facilities, viewing areas, outdoor recreation access routes, trails, and beach access routes. (Accessibility Guidelines for Outdoor Developed Areas)

Public hearings on the NPRM were held in 2007-2008. The Access Board prepared draft accessibility guidelines for review, and based on comments received, a proposed final. It is anticipated that the Access Board will proceed to issue the final rules by December 2013. In terms of water areas, the new guidelines would govern the development of outdoor recreation access routes, and beach access on that site and any permitted or allowed by or on behalf of the Federal government. A water or process is also included in the guidelines to address site-specific constraints such as terrain, engineered species habitat, etc.

C. Accessibility Design Considerations for the Meherrin

Most of the Meherrin’s river banks and shoreline are extremely steep. Developing an accessible launch site on an excessively steep slope can prove difficult, particularly if the slope cannot be leveled, due to the type of terrain, soils, etc., to meet ADA standards of 8.3%. In a few locations, such as at Suffold Bridge and the US Route 1 Wayside, a more moderate slope to the river’s edge exists; however, these areas will be unable to use this side of the bank; the route from the parking area to the top of the steps would need to be accessible.

For the first sites under consideration by the committee (i.e., Wallace’s, Suffold, US Route 1 and SR 46) the following standards should be applied:

6 Draft Final Accessibility Guidelines for Outdoor Developed Areas. US Access Board. October 19, 2009

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8 canoeing and kayaking for people with disabilities by Janet Zeller (ed.) and American Canoe Association. 2009
1. **Access route:** Surface, grade, width, and cross slope should be as accessible to the top of the land as feasible. Surface should be firm and stable, and as even and level as possible (not exceeding 8.33% slope or 2% cross slope) and without gaps or irregularities.

2. **Shoreline landing/launch area:** There should be an area adjacent to the landing area that is level, stable, and at least 12’ x 12’. This can be anywhere adjacent to the landing area, including in water up to 12’ deep.

3. **Transfer assistance:** The greatest challenge to launching, once the paddler is beside the canoe, can be getting down into the seat of the boat. Whether it is on a highly developed launch or a natural riverbank, it is difficult to transfer to a moving boat. A transfer step or board, or added surface texture to improve traction, will help make the transfer easier.

Even in primitive or undeveloped locations, these standards could be accomplished with some forethought. For example, an accessible back country canoe launch might incorporate a large, flat rock surface that is 8’ to 12’ under the surface of the water, to serve as a stable platform for landing and unloading. In this scenario, the height of the wharflet steps would be almost level with the height of the canoe. The access route could be a natural (compacted) soil surface designed with gradual grades to the shoreline.

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**IV. Design Option for the Meherrin River Trail**

The following examples are provided to assist in future access planning for the Meherrin River Trail. For additional examples of access types see Attachment C.

**Design Option 1: Natural Shoreline**

**Source:** Sites vary to various rivers in Virginia and Maryland.

The simplest and most cost-effective launch requires little or no construction. Paddlers may use natural features (i.e., riverbanks, rock outcroppings, gravel bars, etc.) to assist in launching boats. The effectiveness of natural launch sites are dependent on several conditions: river currents in the area are not too strong, slopes are not excessive or prone to erosion, water depths allow for stable launching, magnitude of use does not exceed carrying capacity.

Although the steep slopes and banks of the Meherrin may not be able to accommodate a completely natural launch site, rest stops along the way could take advantage of natural features. Here are some examples:

- **Elizabeth Mill Park:** access site on Goose Creek, Louisa County, VA - natural surface trail from parking area to shoreline, low- to medium-level with gentle slopes

- **Monocacy River, rest stop at old Greenfield bridge site, Frederick County, MD** - rest stop utilized gravel beach that is available at varying water levels, no road access
Design Option 2: Stair-Step Launch Design


The stair-step design, similar to the concrete steps at Whistle’s Hill, is most commonly used in steep stream bank situations, and would be a practical option for the sites under consideration. The route from the parking area to the top of the stairs must meet the slope and stability requirements for ADA compliance. The design will require transfer assistance to manage the stairs. Sediment is likely to deposit on stair treads, requiring manual removal.

The Iowa Design Guide recommends that stair treads be designed with a 2 percent to 3 percent slope toward the stream to allow water to pond on the surface, and all stair treads should be the same width and length. Curved slides can be built with wood or aluminum guardrails along steep slopes. Optional handrails benefit users needing support.

Banister Blueway, King’s Bridge Landing, Stair-Step Launch Design

Source: Carl Espy, Town of Halifax, TownManager@townofhalifax.com

The stairs-step design option was utilized by the Town of Halifax for the Banister River Blueway. This project was an element of a larger bridge project to replace the Virginia Byway Route 260 bridge over the Banister River. In addition to the new bridge, the project included gateway improvements such as streetlights, landscaped sidewalks and parking, a gateway sign and historic signage. The project was funded through a SAFETEA-LU Enhancement Grant.

Technical assistance for this project was provided by the Department of Game and Inland Fisheries, and the Department of Conservation and Recreation. The design was designed and constructed by RRBA-Upper Raccoon with general input from Hill Studio’s site design from the Dan River Basin Association, Raccoon River Trails, the Halifax County Historical Society, the Halifax County Recreation Department and the Town of Halifax.

Figure 3: Conceptual Design for Banister Blueway, King’s Bridge Landing

The final construction design, developed by RRBA-Upper Raccoon utilized a stair-step design; the parking area and pathway to the top of the stairs comply with ADA guidelines. (See Figure 6, below)
Section 3: Points Design Guidelines

Design Option 3: Boat Ramp and Separate Pedestrian Access

Source: "Developing Water Trails in Iowa: Practical design guidelines and templates for planning, site design, signage and construction," Chapter 3 Design, p. 3-16.

On the Mohican, there are limited sites where a boat ramp would be a cost-effective alternative, and could be accommodated especially on the upper portion of the river where the flow regimes and channel dimensions are not large enough to support such a facility. The following example however is provided to show how universal design elements could be incorporated if a boat ramp is considered for the lower Mohican.

The Iowa guidebook recommends two side-by-side ramps, one for pedestrians and another for vehicles. The land-surfed vehicle ramp adjacent to the pedestrian ramp allows delivery of boats, gear, and people to the water’s edges. The vehicle ramp is physically separated from the pedestrian ramp, although both extend to meet with the fair-level concrete transfer area.

A modified design is also included in the guidebook that shows the pedestrian access without the boat ramp.

Figure 7: From: "Developing Water Trails in Iowa: Practical design guidelines and templates for planning, site design, signage and construction," Chapter 3 Design, Figure 3-14.
Design Option 4: Kerr Dam Kayak Chute
Source: Roanoke River Basin Association - Upper Ranch
Scott Murray, Project Manager, smurray@upperranch.org

This project, designed and constructed by RRBA-Upper Ranch, involves the development of a
universally accessible kayak launch at Biggs Island just below Kerr Dam. When complete,
disabled paddlers will be able to launch unassisted by entering the water using a kayak launch
calculated to extend from a landing situated above the normal high water mark. The project was
funded through partnership grants from the VA Tobacco Commission, US Army Corps of
Engineers, and VA Tourism Corp.

Although the Meherrin has different characteristics than Biggs Island Lake (i.e. small river
rather than large lake environment, narrow width and depth, different flow characteristics and
shoreline dimensions, etc.) there may be elements of this design that could be adapted for sites
on the Meherrin.

V. Conclusions and Next Steps
The Meherrin River Trail Committee will be working throughout 2013 and 2014 to assess design
options, secure funding, resolve management issues, and construct new access sites. A
collaborative partnership approach will be needed for long-term maintenance and sustainability
of the river trail.

Major elements include:
- Working with local jurisdictions, state agencies, property owners and business to secure
  access to the river shoreline through easements or the simple purchase
- Developing funds needed for design and construction of new launch sites, utilizing
  volunteers and donated materials when possible
- Developing an overall management strategy to provide consistent, long-term, coordination
  and maintenance across jurisdictional borders
- Working with public and private partners to expand visitor services, improve wayfinding,
  and develop a marketing and communications strategy to better promote the river trail
References


Janet Zeller, US Forest Service, National Accessibility Program Manager, jzeller@fs.fed.us


Upper Reach, Draft Blueprint Master Plan, March 4, 2011 (updated: 11/7/11)
Scott Murray, Director, 252-213-9501, smurray@upperreach.org

Virginia Department of Conservation and Recreation

Virginia Department of Games and Inland Fisheries

Additional Water Trail Planning Resources

Chesapeake Bay Gateways and Water Trails: http://www.baygateways.net/watertrails.cfm


National Water Trails System
http://www.npwa.gov/watertrails/watertrails.htm
http://www.npwa.gov/WaterTrails.html

Florida Blueways Program
http://myfwc.com/hunting/boating/paddling-blueways/

For more information on ADA: Copies of the recreation facility guidelines, which include boating facilities, and further technical assistance is available from the U.S. Access Board at www.access-board.gov, 1-800-872-2255, or 1-800-993-2022 (TTY).
### Attachment A: List of Access Sites, Mecklenburg Concept Plan, 2009

<table>
<thead>
<tr>
<th>Concept Plan ID</th>
<th>Site Location</th>
<th>Planned Facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wallace’s Bridge, SR 712; (North Mecklenburg)</td>
<td>Proposed: launch, small parking area, parking area</td>
</tr>
<tr>
<td>2</td>
<td>Swift’s Bridge, SR 635</td>
<td>Proposed: launch, small parking area</td>
</tr>
<tr>
<td>3</td>
<td>Whitley’s Mill, SR 636</td>
<td>Existing: take out above dam; Launch from sandy shoreline below the dam, parking area</td>
</tr>
<tr>
<td>4</td>
<td>South Hill Landfill (rest stop)</td>
<td>Existing: rest area, no public road access</td>
</tr>
<tr>
<td>5</td>
<td>Union Mill Bridge, SR 138</td>
<td>Proposed: launch and small parking area</td>
</tr>
<tr>
<td>6</td>
<td>US Route 1 Wayside</td>
<td>Proposed; launch, moderate size parking lot, picnic area</td>
</tr>
<tr>
<td>7</td>
<td>Tobacco Heritage Trail (rest stop)</td>
<td>Proposed: rest area; no public road access</td>
</tr>
<tr>
<td>8</td>
<td>Pennington Bridge, SR 644</td>
<td>?</td>
</tr>
<tr>
<td>9</td>
<td>Fort Chisum (rest stop)</td>
<td>Proposed: rest area at river’s edge; trail to historic fort site</td>
</tr>
<tr>
<td>10</td>
<td>Route 46 Bridge</td>
<td>Proposed: launch; small parking area</td>
</tr>
<tr>
<td>11</td>
<td>Iron Bridge, SR 715</td>
<td>?</td>
</tr>
<tr>
<td>12</td>
<td>Western Mill Rd, SR 670</td>
<td>?</td>
</tr>
<tr>
<td>13</td>
<td>VA Beach Pipeline</td>
<td>Proposed; launch; small parking area; need to negotiate with utility company</td>
</tr>
<tr>
<td>14</td>
<td>Emporia-1, Emporia Reservoir</td>
<td>Existing; paved boat ramp at reservoir; need to identify access below dam</td>
</tr>
<tr>
<td>15</td>
<td>Emporia-2, US 301/ Main St.</td>
<td>Existing: launch behind Farmers Market; trail extension and access improvements underway</td>
</tr>
<tr>
<td>16</td>
<td>Emporia-3, Mecklenburg River Rd</td>
<td>Existing; paved boat ramp at public park</td>
</tr>
</tbody>
</table>

#### Existing Facility
- Existing: rest area, no public road access

#### Proposed Launch Site
- Proposed: launch, small parking area

#### Proposed Rest Stop
- Proposed: launch and small parking area

### Attachment B: Mecklenburg River Gauge Data

The following information is from the USGS Lawrenceville Gauging Station, just downstream of Route 46, in Brunswick County, Virginia:
- Hydrologic Unit Code 03010204
- Latitude 36°33′00″, Longitude 77°40′55″ NAD27
- Drainage area 5.52 square miles


The variation in water flow is shown below, which is a calculation of mean flow for the 12-year period between 2000 and 2011.

#### Water Year Discharge, cubic feet per second:

<table>
<thead>
<tr>
<th>Year</th>
<th>Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>516.7</td>
</tr>
<tr>
<td>2001</td>
<td>341.8</td>
</tr>
<tr>
<td>2002</td>
<td>111.3</td>
</tr>
<tr>
<td>2003</td>
<td>1,109</td>
</tr>
<tr>
<td>2004</td>
<td>661.8</td>
</tr>
<tr>
<td>2005</td>
<td>447.7</td>
</tr>
<tr>
<td>2006</td>
<td>312.4</td>
</tr>
<tr>
<td>2007</td>
<td>513.2</td>
</tr>
<tr>
<td>2008</td>
<td>228.3</td>
</tr>
<tr>
<td>2009</td>
<td>284.7</td>
</tr>
<tr>
<td>2010</td>
<td>593.7</td>
</tr>
<tr>
<td>2011</td>
<td>210.9</td>
</tr>
</tbody>
</table>

The National Weather Service flood stage for this site is 15.0 feet. The following graph shows the variation in flow during a 3-year period in March 2013.
The following graphic shows the mean discharge for the water year, October 2011-September 2012.

The following chart shows the mean and max discharge for the gage station (from 1929 – 2012).

### Attachment C. Types of Canoe Kayak Launches

The following photos depict the four primary types of public access facilities for launching hand-carry boats (i.e., canoes and kayaks).

- Natural shoreline
- Steps and slide
- Floating dock
- Boat ramps

1) **Natural Shoreline:** no access, i.e. shoreline access for hand-carry boats only
2) Steps and Slides: concrete or wood steps, with or without slide

- Whittle's Mill Park, South Hill, Virginia

- South Fork, New River Access, Virginia

- South Platte River, Denver, Colorado

- Amoeba Creek Access, Georgia

3) Floating docks: docks and ramp for land carry boats only

- Woodford Castle Park, Smithfield, Virginia

- Lebanon Square Park, Woodbridge, VA

- Hudson River, New York

- Milton Bay, Maryland

- Strawn Lake Park, Virginia Beach, VA
4) **Boat Ramps:** Depending on the volume of use, some boat ramps may provide access for both hand-carried and trailer boats; this is not ideal for areas that receive a high volume of boating traffic; in these instances an adjacent soft launch is developed for use by canoe/kayak rather than sharing the ramp with the trailer boats.
Section 3: APPENDIX
LOGICAL LASTING LAUNCHES

DESIGN GUIDANCE FOR CANOE AND KAYAK LAUNCHES

The National Park Service wishes to acknowledge the following individuals and organizations who contributed their expertise and resources to the development of this publication:

Written and produced by: Caroline Wolf, Student Conservation Association with assistance from the WASO Rivers team of NPS Rivers, Trails & Conservation Assistance program:
Chris Brown, Joan Ham, Corita Jones, and Charles Stockman
Ken Allen, Mark Anderson, Jack Andre, Rose Bayless, Karl Beard, Julie Bell, Gary Boughton, Don Bruns, Russ Cohen, Kevin Colburn, Jim Flanagan, Jon Fleischman, Phyllis Garcia, Jill Harding, Mike Harvey, Carol Hunter, Julie Isbell, Kevin Keeler, Scott Kelleher, Dennis Kloer, Gary Lacy, Roger Lewis, Dana Lockett, Jim Logan, Gary Mechanic, Rich Misplon, Kathryn Nichols, Thomas O'Keefe, Tim Palmer, Stew Pappenfort, Mike Passo, Ken Phillips, Tom Potter, Jason Robertson, Kay Salazar, Michelle Schneider, Rita Settina, Don Smith, Diane Steinbrook, Carl Stockman, Linda Stoner, Angie Torres, Caroline Tan, Charles Tracy, Reed Waite, Rob White, Thomas Wolf, and Janet Zeller
American Whitewater
Arkansas Water Trust
Chicago Access Project
City of Eureka, California
Colorado State Parks
Delaware Department of Fish and Wildlife
Housatonic River Restoration Project
Hudson River
Illinois Department of Natural Resources
Lower Colorado River Authority
Maryland Department of Natural Resources
Minnesota Division of State Parks
Montana State Design & Construction Bureau
North Carolina Department of Natural Resources
Openlands Project
Rivers Trails & Conservation Assistance Program, National Park Service
Washington Water Trails Association
Wisconsin Department of Natural Resources
West Virginia Department of Natural Resources
This publication offers guidance in designing canoe and kayak launches for a variety of access sites. Descriptions, designs, and photos of launches are grouped into eleven chapters, according to type, with focus on the point of entry onto the water.

Comprehensive designs for access facilities (e.g., restrooms, parking, and signage) and legal issues are not fully addressed here. Resources for information on these topics and related issues are provided throughout the guide and in the bibliography.

While this guide provides general assistance with choosing suitable launch types for particular sites, each body of water's unique characteristics require individual consideration in regard to launch use and design. Development of any access point should involve local experts who can provide information on legal matters, hydrology and dynamics, riparian ecology, and other relevant factors.

Accessibility to paddlers with disabilities must be considered throughout the design and construction process. The 1990 Americans with Disabilities Act (ADA) requires that "new construction and alterations of facilities (which include canoe and kayak launch facilities) are readily accessible to and usable by individuals with disabilities." Standards applied to boating and other recreation facilities may be found in the ADA Accessible Guidelines (ADAG) issued in 2002. These guidelines are not limited to federally funded facilities; they apply to all public recreation facilities. See Chapter III for more information.

**How to use this guide**

Chapter I introduces essentials to designing a logical and lasting launch. This chapter presents five important factors to consider when designing a launch and discusses the relevance of location and water body characteristics to choosing an appropriate launch type for a particular access site.

Chapter II provides a quick reference chart to assist with choosing a launch type that can accommodate conditions or characteristics specific to an access site. In some cases, designs can be altered or combined to provide more effective access.

Chapters IV-X provide the following information for each launch type:

A. General description  
B. Materials used  
C. Design specifications/ variations  
D. Advantages  
E. Disadvantages  
F. Case examples, designs, photos - where these launch types have worked!

Chapter XI discusses several design options for access in environmentally sensitive areas.
**CHAPTER I: **

THE ABCS OF LOGICAL, LASTING LAUNCHES

**Considerations for design, location, and type of water body**

◊ What makes a launch logical and lasting?

A logical, lasting launch provides safe and easy access for paddlers while accommodating the topographic, climatic, and ecological characteristics of its location. Ideally, its construction is cost-efficient and durable and has little impact on the environment and riparian ecology.

◊ The ABCs, Ds and Es of launch design

It is important to consider a variety of factors when developing a launch design. Consider the following goals:

<table>
<thead>
<tr>
<th>Accessible</th>
<th>Best-suited</th>
<th>Cost-effective and durable</th>
<th>Environment-friendly</th>
</tr>
</thead>
</table>

**Accessible to all paddlers**

Paddlers of all abilities want to launch and land smoothly without capsizing or damaging their boats. They need firm surfaces that support their movements and sufficient space to accommodate the length of their boats during put-in and take-out. Paddlers must be able to stabilize their boats during transition to and from the water. Climbing in and out of boats can be especially challenging when there is significant height difference between seat levels and shoreline. Additionally, federal law requires that all boating facilities provide access to paddlers with disabilities whenever possible (see Chapter III for details).

**General recommendations for designing an accessible launch**

- **Height above water:** Between 9” and 2’ from highest expected water level
- **Width:** At least 5’ wide, preferably 6’ to 12’
- **Length:** At least 25’ to allow paddlers “dry” access to entire length of their boats
- **Slope:** ADA Accessibility Guidelines require that slopes not exceed 8.33% whenever possible; a slope exceeding 15% will make transition from land to water difficult for any paddler
- **Support:** Handrails or other support structures, including step-down designs or ropes, help paddlers balance their weight during put-in and take-out
- **Location:** Ideally in areas without heavy flow, erosion, exposure to elements, heavy boat traffic, or fragile riparian habitats

**Best-suited**

The type of launch chosen should be suitable for a particular access location, meaning that it should be the most sensible choice considering the characteristics of the water body, as well as relevant climatic and ecological factors.

**General recommendations**

A launch that is “best-suited”:

- Is constructed in accordance with any applicable regulations
- Provides safe access, away from potential river hazards, especially at different flow levels
- Can withstand flow levels, currents, and exposure to elements at a particular site
- Accommodates paddlers in varying water depths
- Provides a firm surface for launching, despite changes in sedimentation levels
- Will not be easily damaged due to climatic or seasonal conditions
- Does not cause damage to riparian habitats or vegetation during its construction and is unlikely to have environmental impacts over time and through usage
- Is not constructed in an area vulnerable to erosion
- Is constructed with consideration to its intended uses and frequency of use

**Cost-effective and Durable**

Existing natural sites (e.g., banks, rocks, beaches) are preferable, as they cost nothing to develop, however, they may not be durable and can require reinforcement over time. Minimal construction will keep costs low and help maintain a natural appearance along a shoreline. If construction is necessary, using durable materials reduces the need for later repairs or replacements, yet the speed at which materials weather will depend on climatic factors and level of exposure to currents and winds.

In some cases, existing docks used by motorized boats can provide stable surfaces for paddler access, but many standard docks rise too far above the surface of the water to enable a safe and easy put-in for paddlers. Some boat docks may be modified or easily improved to make them more paddler-friendly; for example, they can be lowered, lengthened, or widened. Ramps can be made less steep or step-downs may be added, along with handrails, cleats, or windbreaks. Shoreline features, such as boardwalks and bulkheads, can be combined with floating docks to enable hand-launching.

The Humboldt Bay Trails Feasibility Study is an example of a detailed assessment conducted by the Redwood Community Action Agency of existing launch facilities around Humboldt Bay in Eureka, CA. The study offers recommendations on simple improvements that can be made to launch areas to make them more paddler-friendly. The study can be downloaded online at http://www.rcaa.org/baytrails/ from the Redwood Community Action Agency’s website.
General recommendations

- Use construction only when absolutely necessary. In many cases, an actual launch structure may not be needed; firm or sandy banks, level rocks, and beaches can often provide sufficient access (see Chapter IV). Boaters may only need a hardened bank for access.
- Choose accessible sites with minimal exposure to winds and heavy currents, preferably near calmer areas of water, such as near eddies; if this is not possible, consider creating a vegetative or other type of buffer to provide protection from the elements.
- To reduce construction needs and costs, make modifications to existing boat docks or shoreline structures to make them more "paddler-friendly." 
- Construct launches that serve multiple purposes, such as mitigating erosion or restoring wetland vegetation; simple ramps or implanted beaches may help to stabilize a fragile bank or provide "soft treatments" while also enabling access.

Environment-friendly

Use of low-impact designs and non-toxic materials is essential to watershed health, from protecting water quality, vegetation, and riparian habitats to enabling sustainable recreation. In many states, environmental regulations must be considered prior to, and during, launch construction.

General recommendations

- Investigate any applicable regulations; develop launch designs in accordance with these regulations.
- Use structures requiring minimal construction or alteration to the shoreline (see Chapter XI for information on low-impact designs).
- Consult with local natural resource specialists during the planning and construction phases to screen for the presence of ecologically sensitive nesting sites, rookeries, spawning areas, or endangered species; an optimal put-in site may not be feasible for ecological reasons.
- Merge the needs of natural functions and the desired recreational uses of the water; with rivers and streams, avoid making any channel modifications and preserve in-stream habitats as much as possible.
- Monitor watershed conditions and changes in stream morphology continually.
- Gather data from local or state agencies that monitor water levels and flows to develop a launch that will accommodate the conditions of the water body over time.
- Avoid using hard reinforcements (e.g., concrete, steel, rock) where shorelines are eroding; use bioengineering methods, such as developing a riparian buffer planted with native species, to protect vegetation and habitats and stabilize shorelines while sheltering the launch area from the elements; along streams, wider buffers can allow space for lateral movements and can help to re-establish meander over time – these methods allow plant species to become self-sustaining and can also improve aesthetics.
- Avoid using toxic or hazardous materials or items that have contained these materials.

Additional considerations

Additional factors to consider in launch design are preservation of historic or cultural landscapes, as well as aesthetics. Historic sites may have particular characteristics or regulations that influence where a launch can be constructed or what types of materials may be used. See Chapter X for an example of environmental assessments conducted to protect an historic canoe launch at Fort Clatsop National Memorial.

Location, location, location

Whether or not a launch will be effective and be able to provide sustainable access depends largely upon its location and the characteristics of the water body it is on.

General recommendations

- Access is preferable in areas that have:
  - Minimal exposure to strong currents and winds, such as river eddies or in a cove or inlet
  - No physical barriers, such as impassable sections, dams, or weirs
  - Distance from other boat traffic, so that paddlers do not have to cross heavy traffic areas
  - Water levels enabling year-round use
  - Good water quality
  - Little lateral movement that could erode the riverbank
  - Visibility from both river and shore, allowing paddlers to locate the launch site easily

Natural resource specialists should be consulted throughout the planning, design, construction, and maintenance phases.

American Whitewater (http://www.americanwhitewater.org) provides detailed guidance on choosing and developing access areas, including information on legal considerations, in their Acquisition & Management Guide.

The Openlands Project (http://www.openlands.org) also offers a Launch Site Facilities Checklist (http://www.openlands.org/template.asp?pgid=185) that provides useful information on planning for access facilities.
Considerations for different water bodies: Rivers, Whitewater and Swiftwater Rivers, Tidal Estuaries and Coastal Areas, Lakes

Rivers

It is best to access a river in an area with little current, located on the inside of a meander bend, or along sections of a channel, below a meander on the opposite side from a river’s cutting side. Areas of heavy flow should be avoided, since strong currents cause wearing on the site over time and can be hazardous to paddlers. Having some movement in the water, however, may prevent excessive sediment accumulation that could cause a canoe or kayak to get stuck. Ideally, there would be a moderate level of deposition that forms a natural beach area suitable for launching.

High-flow rivers can change character dramatically when water levels fluctuate with seasons or rainfall. For example, water levels can rise rapidly due to spring melting or heavy rains. They can also rise with varying dam releases. Rocks, snags, low trees, and other hazards may be disguised during high flow, making them difficult to avoid; they may also be dangerous to paddlers at low flow. Some rivers turn into mudflats during low flow, which can make access nearly impossible unless there is a firm surface with sufficient water depth for launching.

Meander bends on large floodplain rivers may be temporary features, given the dynamic nature of flows, therefore launch design should take into account possible channel migration over time. Aerial photos over a period of years may be available from the U.S. Geological Survey (USGS) and can be helpful resources in analyzing channel migration.

Federal and state government agencies, such as USGS, the U.S. Army Corps of Engineers, and state water surveys, can usually provide information on average water heights. These are important statistics to know before constructing a launch on any site.

Since no two rivers are identical, building an effective launch will depend on a river’s individual characteristics and on a range of topographic, ecological, and climatic factors. Stream channel patterns are impacted by stream flows, sediment deposits, climatic conditions, and landforms. Bank erosion rates, bed stability, slopes, riparian vegetation and habitats also affect a river’s structure and behavior. Similarly, no two points along a river are the same. Rivers also change character along their courses and over time; occurrences on one segment affect what happens downstream.

Whitewater and Swiftwater Rivers

Rivers that experience dramatic differences in flow and water level with seasonal changes or varying dam releases require launch areas that can withstand these extreme fluctuations and accommodate paddlers in a wide range of circumstances.

Access to whitewater and swiftwater rivers is preferable near eddies or calmer sections, but heavy flows may still destroy built launch structures in these areas. For this reason, natural shoreline areas that can be easily and cheaply reinforced are typically the best option for launching. Level beaches, flat rock outcrops, and sturdy banks may be sufficient. Some launch structures, such as concrete staircases, may withstand heavy flows provided that undercutting does not cause erosion at the site. Concrete steps can also be used to divert runoff from a launch area (see Chapter VIII).

Banks adjacent to bridges, provided that access is permitted in these areas, may provide consistent access during changing flows. Access from the road to these areas are often convenient, and the armoring used to protect bridges can also protect the launch area.

Tidal Estuaries and Coastal Areas

As with rivers, access in coastal areas is preferable in areas protected from waves and winds. Tidal water bodies may experience dramatic changes in water level with the tides. Similar to high-flow rivers, a deep channel can become a muddy flat within a period of hours. Tidal changes can pose risks to paddlers when rocks or other hazards are exposed in lower water levels. Launches need to be built to withstand tidal fluctuations and possible impacts caused by floating debris or aquatic life carried in or left behind by tidal currents. Materials used to construct launches should be salt-resistant.

Vegetated banks with informal launch and take-out sites can be fragile and subject to trampling by paddlers, who may be unaware of their impact. Rocks or other natural materials may be placed in a way that directs paddlers toward specified launch areas and paddlers can be educated about their impacts. Maintaining natural grasses along these banks will help control erosion and preserve wildlife habitat.

Environmental factors specific to salt water areas should also be considered. For example, the level of sunlight needed by marsh and marine grasses should be taken into account when choosing a launch location or type. Some structures that block light may prevent vegetation from receiving sufficient light for growth. Additionally, using piles or other support structures on sandy estuary bottoms may cause sediment displacement.

Lakes

Built launch structures may not be needed on lake sites where shorelines are less vulnerable to heavy currents and fluctuating water levels. However, access is still recommended in relatively protected areas with minimal exposure and erosion problems. Shallow, marshy areas should be avoided, as they are difficult to navigate and likely to host fragile wetland ecosystems. Lakes can vary greatly in size, character, and behavior. The Great Lakes, for example, behave like tidal water bodies. Launch sites suitable for coastal areas should be considered in these areas.
### CHAPTER II:

**QUICK REFERENCE GUIDE TO LAUNCH TYPES AND USES**

<table>
<thead>
<tr>
<th>If you have...</th>
<th>Consider using...</th>
<th>as long as...</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Naturally” suitable areas, e.g.:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Shorelines with sturdy banks</td>
<td>• Existing site, with slight modifications, if necessary (e.g., adding sand or gravel to improve drainage)</td>
<td>• Shoreline or riparian area is not vulnerable to erosion</td>
</tr>
<tr>
<td>• Stable rock outcrops</td>
<td></td>
<td>• Space is sufficient to launch and maintain balance</td>
</tr>
<tr>
<td>• Beach areas with firm substrates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• An area with minimal current or exposure to elements</td>
<td>• Reinforced natural site (see Chapter IV)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Simple gravel ramp</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Floating launch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Pipe or pile launch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cantilever launch</td>
<td></td>
</tr>
<tr>
<td>• Steep shoreline</td>
<td>• Step-downs, timber steps, handrails, or rope supports</td>
<td>• Access is hazard-free</td>
</tr>
<tr>
<td></td>
<td>• Connecting structure or structures (e.g., gangways) with floating or pile launch</td>
<td>• Environmental impact is minimal</td>
</tr>
<tr>
<td></td>
<td>• Timber, concrete, or metal stairs</td>
<td>• Water depth is sufficient for launching</td>
</tr>
<tr>
<td></td>
<td>• Added soil to level slope (least favorable choice)</td>
<td></td>
</tr>
<tr>
<td>• Shoreline with slippery slope</td>
<td>• Corrugated aggregate ramp</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Added gravel or other surface to provide traction &amp;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Concrete mats</td>
<td></td>
</tr>
<tr>
<td>• Steep drop-off from shore</td>
<td>• Concrete, timber, or metal steps/stairs with handrails and boat slide</td>
<td>• Added traction does not prevent access to paddlers with disabilities</td>
</tr>
<tr>
<td></td>
<td>• Concrete or other type of ramp with corrugated surface to provide traction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Area is protected from hazards, strong currents, and winds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Launching area at water level is sturdy and provides sufficient space for launching</td>
<td></td>
</tr>
<tr>
<td>• Eroding shoreline</td>
<td>• A different site!</td>
<td>• Alternative access locations are not available</td>
</tr>
<tr>
<td></td>
<td>• Native vegetation, along with gravel or rock, to help stabilize bank</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Vegetative or other buffer to protect shoreline</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Timber staircase that also reinforces bank</td>
<td></td>
</tr>
<tr>
<td>• Marshy areas</td>
<td>• Boardwalk or fixed pier</td>
<td>• Construction will not cause damage to wetland habitat or jeopardize integrity of the shoreline</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Bulk-headed shoreline</td>
<td>• Floating launch</td>
<td>• Area is not too exposed</td>
</tr>
<tr>
<td></td>
<td>• Implanted beach area</td>
<td>• Traffic is not heavy</td>
</tr>
<tr>
<td>• Boardwalk</td>
<td>• Floating launch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Concrete ramp</td>
<td></td>
</tr>
<tr>
<td>• Launch site is adjacent to a wash or streambed</td>
<td>• Natural materials to repair launch inexpensively</td>
<td>• Site is maintained and screened for potential hazards after high flows</td>
</tr>
<tr>
<td>• carrying excessive flows and silt deposits</td>
<td>• Concrete buffer strip to break up the impact of flow (see Chapter V)</td>
<td></td>
</tr>
<tr>
<td>• Environmentally sensitive area</td>
<td>• Alternative sites exist</td>
<td></td>
</tr>
</tbody>
</table>

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**Section 3: APPENDIX**

- **Clinch River Access Points Design Guidelines**
- **Community Design**
- **Credits**

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**Logical Tailers Launches**

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**Omaha Access Sites**

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**Alternative access locations**

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**Construction**

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**Wetland Habitat**

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**Shoreline**

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**Transportation**
<table>
<thead>
<tr>
<th>If you have,</th>
<th>Consider using,</th>
<th>as long as...</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Budget constraints</td>
<td>• Simple launch using native materials</td>
<td>• Site safety, environmental health, and sustainability of launch is not compromised by using low-cost materials</td>
</tr>
<tr>
<td></td>
<td>• Makeshift construction (consider aesthetics here)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Pile or pipe launch</td>
<td></td>
</tr>
<tr>
<td>• Silt problems/low flow</td>
<td>• Pile, pipe, or cantilever launch that extends to an area of sufficient depth flow</td>
<td>• Area is protected from hazards, strong currents, and winds</td>
</tr>
<tr>
<td>In the following circumstances, floating launches can be effective as long as: (see Chapter V)</td>
<td>1) At least 9” exists between the launch and the highest water level</td>
<td>3) Water depth is sufficient for launching</td>
</tr>
<tr>
<td></td>
<td>2) Water level changes are not too rapid or dramatic</td>
<td>4) Launch is removed during freezing or flooding</td>
</tr>
<tr>
<td>• Fluctuating water levels or tides</td>
<td>• Floating launch</td>
<td>• Current is not too strong</td>
</tr>
<tr>
<td></td>
<td>• Beach area or sturdy bank</td>
<td>• Water depth is at least 2’ to 3’</td>
</tr>
<tr>
<td></td>
<td>• Pile or pipe launch</td>
<td>• Water level remains below height of deck at all times</td>
</tr>
<tr>
<td>• Periodic flooding</td>
<td>• Removable floating launch or ramp (aluminum/metal)</td>
<td>• Launch is removed when flooding occurs and before mudflats are exposed</td>
</tr>
<tr>
<td></td>
<td>• Concrete stairs that can be easily maintained</td>
<td>• Location is not vulnerable to damage by excessive debris or currents</td>
</tr>
<tr>
<td>• Shallow water</td>
<td>• Pile or pipe launch extending to deeper water</td>
<td>• Structures are installed with minimal disturbance to wetlands; non-toxic or treated materials used</td>
</tr>
<tr>
<td></td>
<td>• Gangway or other connecting structure attached to floating launch</td>
<td></td>
</tr>
<tr>
<td>• Busy launch area shared with motorized boats</td>
<td>• Floating launch</td>
<td>• Launch is located away from heavy motor boating traffic</td>
</tr>
<tr>
<td>• Icing</td>
<td>• Removable or modular launch, such as a floating or pipe launch</td>
<td>• Launch is removed before freezing begins</td>
</tr>
<tr>
<td></td>
<td>• Pile launch made of alternative wood product that will not damage in ice</td>
<td>• Launch is monitored throughout ice season</td>
</tr>
</tbody>
</table>

NOTES

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Clinch River Access Points Design Guidelines

Section 3: APPENDIX

13

Logical Floating Launches

14

Logical Floating Launches
DEFINITION OF TERMS

- **Abutment**: A masonry structure that supports pressure of an arch or bridge; for purposes of this guide: a wedge-shaped anchor that connects the end of a floating launch with the top of a launching ramp or connecting structure.

- **Aggregate**: Sum of many heterogeneous things taken together; for purposes of this guide: a combination of materials (e.g., sand, gravel, slag) mixed with a cementing material to form concrete, mortar, or plaster; helps to increase traction.

- **Bioengineering**: The use of live plants and plant parts as building materials for erosion control and landscape restoration.

- **Buffer strip**: Strip of vegetation implanted along a stream or other water body that offers protection to a vulnerable area of shoreline from climatic elements and currents.

- **Cleat**: A fitting device where a rope may be tied to provide support or anchoring; frequently has two projecting parts.

- **Fender**: A protective device used on the edges of a launch to lessen shock and prevent damage to boats.

- **Gabion**: A strong and flexible steel wire cage, filled with rocks, designed to abate erosion; may also house macro-invertebrates and provide shade and eddies for fish habitats.

- **Gangway**: A removable passageway of planks enabling continuous access; often used to connect two structures or to connect a launch or other structure to the shoreline.

- **Pile**: A long, slender column, typically made of timber, steel, or reinforced driven into the ground and used as a support for a launch or other horizontal platform.

- **Pile guides**: Anchored pile holders that allow for vertical movement of a floating launch while maintaining its connection to another structure or shoreline anchor; are typically hoops made of welded steel bolted or welded to the frame of a launch.

- **Ramp**: A sloped surface enabling traffic to move from one level to another; a slope for launching boats.

- **Rebar**: Rod of steel placed into concrete as a reinforcement.

- **Rip-rap**: A foundation or retaining wall made of stones, used to prevent erosion, that is often placed on or around an embankment.

- **Stringers**: Support devices, usually made of wood, aluminum, or steel, used as a series of uniform pieces to reinforce decking on a launch structure.
CHAPTER III:

DESIGNING ACCESSIBLE LAUNCHES IN ACCORDANCE WITH AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES

The 2000 U.S. Census reports that over 49 million Americans have one or more disabilities and that a significant number of these individuals participate in outdoor recreation activities including canoeing, kayaking, and other boating activities.

In 1990, in order to provide an equal opportunity for individuals with disabilities, Congress enacted the Americans with Disabilities Act (ADA). The ADA mandates that individuals with disabilities must be given an equal opportunity to access public facilities and that reasonable accommodations must be made to account for physical and mental limitations of individuals with disabilities.

Guidelines for newly designed, constructed, and altered recreation facilities issued by the ADA in 2002 require that all public boat launches, which include fixed and floating structures of all sizes, comply with ADA Accessibility Guidelines (ADAAG) standards. Copies of ADAAG for recreation facilities are available online at http://www.usdoj.gov/crt/ada/stdspdf.htm and may be downloaded as an Adobe PDF file.

This chapter addresses ADAAG standards that apply to launch structures and does not discuss operational issues related to boat launching, such as accessible parking, exterior routes, and restroom facilities. A Guide to Boating and Canoe Access Development in Illinois (IL DNR, 1998) provides information on developing accessible land-side facilities. Accessibility recommendations for trails and access routes may be found at http://www.access-board.gov/outdoor/outdoor-rec-rpt.htm in the Access Board’s Proposed Guidelines for Outdoor Developed Areas.

When providing an equal opportunity for participation in boating activities, different types of disabilities must be taken into account. Physical disabilities necessitate reasonable modification of the structural environment to provide access to the shore or launch site, as well as the watercraft. Developmental disabilities necessitate methods of effective communication to provide directions to sites and instructions for safe usage; these may include signage and alternative formats for informational materials.

Due to fluctuating water levels and varying terrain at different access sites, innovative ways to adapt or customize launch sites may be needed. This chapter discusses important considerations that must be made when providing access for paddlers with disabilities.

The Access Board, which develops and maintains criteria for accessibility, provides basic design requirements for recreation and recreation facilities through the following three websites:
- http://www.access-board.gov/recreation/final.htm
- http://www.access-board.gov/recreation/guides/banking.htm
- http://www.access-board.gov/adaag/html/adaag.html#5.2.2Boating%20Facilities

Access Board Guidelines for Boat Launches

The Access Board’s guidelines for accessible recreation facilities are as follows:

ADAAG require that boat launches be equipped with at least one accessible route to boat launches that complies with ADAAG standards for:
- location
- width
- passing space
- head room
- surface slope
- level changes
- doors
- egress
- areas of rescue assistance

ADAAG standards must be met if the accessible route connects a fixed launch to the shore or if the accessible route connects a fixed launch to another fixed structure, unless they are modified by specific provisions outlined by the Access Board.

Exception: Gangways connecting floating structures

If the accessible route uses a gangway connecting to a floating structure, exceptions to ADAAG may be made to accommodate varying water levels and other factors. Gangways should be designed with the least possible slope and, if possible, designed so as not to exceed a slope of 8.33% or a ratio of 1:12. Since the slope of a gangway will rise and fall with changing water levels, its slope may, in some cases, exceed 8.33%. This is acceptable as long as the gangway is at least 30 feet long. Gangways are required to be at least 80 feet long if the vertical distance between the lowest water level and the point where the gangway connects to land is 10 feet.

Any other sloped surface must comply with ADAAG requirements:

Transition plates

These are sloped surfaces located at the end of a gangway. If the slope of a gangway is greater than 1:20 (or 5%) it must be equipped with a landing at the non-gangway end of the transition plate and comply with ADAAG ramp requirements.

Handrails

Handrails are required on sloped surfaces that have a rise of less than 6 inches or a projection less than 72 inches, or a slope of 1:20 (5%) or less. Since the surface may be moving with changes in the water, handrail extensions do not need to be parallel to ground or floor surfaces.
Cross slope

The cross slope of a structure refers to the slope perpendicular to the structure’s “running” slope or slope spanning the length of the structure. The cross slopes of gangways, transition plates, and floating piers that are part of an accessible route must be designed and constructed to not exceed a maximum of 2% or a slope of 1:50. Gangways and piers that are part of an accessible route are expected to be designed and constructed to meet the 2% requirement. Once placed in the water, measurements, absent live loads, are to be made from a static condition (i.e., absence of movement that results from wind, waves, etc.). Where floating piers are grounded due to low water conditions, slope requirements would not apply.

While many launches built prior to ADA’s issuing of accessibility guidelines are not accessible to paddlers with disabilities, they may be retrofitted with features that make them accessible.

When designing or retrofitting a launch to meet ADAG, it is important to ensure that design alterations do not prevent paddlers without disabilities from also using them. It is possible that placement of handrails or other modifications made for accessibility can prevent able paddlers from using them. Launch designs should consider the needs of all paddlers.

Design considerations from a paddler’s point of view

Michael Passo, an experienced paddler who uses a wheelchair, recommends the following design accommodations in order to provide access for paddlers with disabilities:

Access route

Surface, grade, width, and cross slope need to be as accessible as a particular location will allow. Surface should be as even and level as possible (not exceeding 8.33% slope or 2% cross slope) and without gaps or interruptions. The route should be clearly marked.

Level and stable landing/landing area

There should be an area adjacent to the loading area that is level, stable, and at least 60” x 60”. This can be anywhere adjacent to the loading area, including in water up to 12” deep. An accessible back country canoe launch might incorporate a large, flat rock surface (provided that it is not slippery) that is 8” to 12” under the surface of the water and has a gradual access route made of native soil. The transfer from a wheelchair on that rock to a floating canoe could be nearly level.

Transfer assistance

The greatest challenge to using a launch, once a paddler is beside the canoe, can be getting down into the seat of the boat. Whether it is on a highly developed launch or bank of a lake, it is difficult to transfer to a moving boat. Making the transfer easier will help paddlers considerably.

Options to facilitate transfer from the launch area into a boat include:

- A transfer step or moveable structure approximately 8” to 12” high that assists paddlers who have difficulty bending or squatting and provides wheelchair users with an intermediate step between their chair and the ground. A carpet-covered box or large, stable rock may be used.
- A transfer board is a board that slides out from the launch, over the top of the canoe, and allows a person to slide out over the canoe before sitting down on the seat. If located at gunwale level, it can both support a person’s weight and stabilize the boat as legs are moved around and adjustments are made.
- Overhead handles, grab bars, etc. The transfer between land and boat can be extremely difficult to maneuver, especially when moving from a canoe seat to a higher launch platform. Alternative grab points can mitigate the complicated procedure of getting oneself onto a launch from a boat so that the boat is not the sole anchor point.
- Surface textures on a launch, including those added to provide extra traction, should be practical for wheelchair use. Surface gaps should not exceed 0.3” since the widths of most wheelchair tires and caster tires are between 0.75” and 1”. Innovations in adaptive gear, which include devices to improve traction and maneuverability, do exist and can make off-road surfaces much easier to navigate. Nevertheless, launches should be built to accommodate basic wheelchair treads. The website http://www.titaniumarts.com offers commercial examples of adaptive gear.

Passo also recommends the book Canoeing for Disabled People by Geoff Smiley as a useful resource on accessible designs (see Bibliography).
ADA accessible launches: Case examples, designs, photos

1) Bonnie Gool Guest Dock, Humboldt Bay, Eureka, California

Built about 10 years ago, the Bonnie Gool Guest Dock maintains a consistently accessible slope of 8.33% for about 90 percent of the time. Only during extreme low tides does the slope become too steep. The launch is composed of several connecting parts. A fixed dock at the shoreline connects to an intermediate approach ramp at a 90 degree turn. This intermediate ramp, designed to be flexible, has a “certain” elevation, meaning that its slope will never exceed 8.33%; it is secured with locks and piles that give it a set minimum height. The ramp is surfaced with non-skid, expanded metal (aluminum alloy) that provides traction when the slope becomes steep; it connects to a floating launch at a 90 degree turn.

Photos courtesy of Gary Boughton, City of Eureka

Photos 3A, 3B: An approach ramp, with a fixed slope of 8.33%, connects floating launch to the shore

2) Canoe launch, Camp For All, Burton, Texas

Situated on an 8-acre lake, this launch provides access for children with disabilities. The 20’ x 16’ wooden structure attaches to a concrete surface on the shoreline via an aluminum gangway approximately 12’ long. Two 3.5’ tapered ramps allow canoes to slide up onto the launch, easing transition to the water for those in wheelchairs. A railing around the perimeter of the launch, made of double 2 x 4’ wooden pieces, helps keep wheelchairs from sliding off the launch and also provides an anchoring device for boats.

Photos courtesy of Roger Lewis

Lower Colorado River Authority

Photos 3C, 3D: ADA accessible wooden floating launch has two tapered ramps that allow canoes to slide up onto the deck
The “F” Street floating dock is one of several launch structures on Humboldt Bay that provides access to paddlers with disabilities. An aluminum gangway just over 80’ long connects to a floating launch made of treated wood and concrete floats. Galvanized steel connectors hold the dock’s components together. Concrete floats provide maximum stability and are extremely durable (see Chapter VIII).

**Photo courtesy of Gary Boughton, City of Eureka, CA**

**Photo 3E: Aluminum gangway serves as a ramp to floating launch**
CHAPTER IV: SIMPLE LAUNCHES
Natural and Existing Shorelines, Beaches, and Simple Ramps

A. General Description
The simplest and most cost-effective launches require little or no construction. Paddlers may use "natural" features (e.g., riverbanks, rock outcrops, areas adjacent to bridges) or existing shorelines with decks, bulkheads, or boardwalks. Any of these can suffice as long as currents in the area are not too strong, water depth allows for stable launching without damage to boats, and the vertical space between the shore and surface of the water is not excessive. Paddlers must also have enough space to place their boats in the water and easily step in or out of them.

B. Materials
- Native soil, sand, gravel, or vegetation may be added to improve drainage and control erosion; fist-sized rip-rap can be added to trap sediment and fill in over time
- Natural materials, unique to a particular area, may blend with the natural landscape and be most easily accessible (e.g., in the Chesapeake Bay region, native crushed oyster shells may be used to reinforce surface landings)
- Flat rocks can sometimes provide firm surfaces, however pointed or jagged rocks are not recommended, as they are unstable surfaces that can damage boats or injure paddlers
- Beaches with firm substrates; matting can be used to temporarily stabilize a sandy beach
- Gravel can be used to form simple ramps, preferably in areas of minimal wave action or water level fluctuation
- Braided rope, tied to a tree or other shoreline anchor, can serve as a makeshift handrail

C. Design variations/specifications
- Graded banks are preferable, 12’ wide at water line tapered to 9’ wide at top by 15’ long (length will depend on water levels and shoreline stability)
- Launch area should be at least 20’ at sites that are used for both rafting and paddling
- Preferred slopes meet ADA accessibility standards of 8.33%; slopes should not exceed 15%
- Water level should be deep enough to enable launching without damaging boat (preferably at least 2’); kayakers may want at least 4’ to permit rolling

D. Advantages
- Cost-effective/low maintenance – native materials can be easily added or shifted to suit needs and changing conditions of launch area
- Less environmental impact due to little or no construction
- Can be combined with simple construction to restore habitats or control erosion
- Aesthetically pleasing; minimal visual alteration to natural shoreline
- Shorelines and beaches provide ready anchorage

E. Disadvantages
- May not be accessible to physically challenged paddlers
- May not be consistently accessible due to varying flows, water levels, amount of exposure, or climatic factors
- Can be slippery or difficult to manage when wet
- Can be steep
- Could cause damage to wetland habitats, depending on frequency of use
- Not easily spotted from rivers – paddlers may pass them by if there is no signage or clear indication of the access site
- Gravel ramps can erode easily and can scratch boats if paddlers do not land properly
- Chemicals from railroad ties or treated wood may pollute water where leaching occurs

F. Case examples, designs, photos
1) Rimon launch site, Arkansas River, Stirling, Colorado

Photo 4A: Rocky beach provides river access

Photo by Caroline Wolf
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Photo 4b: Sandy beach provides access to the river

Sauk River, Washington

Missouri River, below confluence with Niobrara River, Nebraska

Photo 3:

Climb Creek, Golden, Colorado

Photo 4b:

Kayaker launches from a level bank

Photo 4c:

Kayaker prepares to launch from flat rock outcrops

Photo 3:

Logan Landing, Louisiana

Photo 33:

Logan Landing, Louisiana

Community Design Assistance Center
College of Architecture + Urban Studies
Virginia Polytechnic Institute and State University
Clinch River Access Points Design Guidelines

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NOTES

1. Delaware River, Narrowsburg, New York

2. Photo 4f: Canoes are easily launched from a sandy bank

3. Photo 46: Restored bank with rock outcrop enables access to varying water levels

Photo by Tim Palmer

Photo by Caroline Wolf
Clinch River Valley Initiative (CRVI)
Suggested Best Practices for Public Access Development along the Clinch River

The Clinch River Valley Initiative is an innovative, pioneering, and collaborative multi-year planning effort to build local economies in the coalfields of Southwest Virginia, focusing on the Clinch River — one of the most biodiverse river systems in North America. A key goal of the Clinch River Valley Initiative (CRVI) action plan is the creation of additional public access locations along the Clinch River in Virginia. By increasing public access at appropriate locations, there is an opportunity to encourage growth of eco-tourism and improve opportunities for residents and visitors to safely enjoy the river in an environmentally sensitive manner. While new public access locations may vary slightly in their design because of various factors, and be owned or managed by different entities, the CRVI envisions a system of public access locations that complement each other and provide for an overall consistent user/visitor experience. This brief and basic document is intended to assist localities as they secure, develop, and maintain public river access locations as part of the larger CRVI effort. The CRVI “Access Points Action Team” is also available to meet with localities to provide consultation and share additional information regarding access points on the Clinch River.

Below are general recommendations and best practices that encourage a consistent and cohesive effort to develop additional public access along the river. In developing new public access points, localities may choose to implement a phased approach as their funding and capacities allow. Ultimately, CRVI recommends that localities plan to develop and maintain access points in such a manner that they are similar to those existing river access points (e.g. Nash Ford) managed by the Virginia Department of Game and Inland Fisheries (see pages 5-7 of this document for DGIF maps of existing access points on the Clinch River). For more information about VA DGIF’s criteria for their public access sites please see: http://www.dgif.virginia.gov/boating/access/grants/public-boat-access-grants-cooperator-boatings-maintenance-requirements.pdf. Contact Steve Kesler at DGIF by e-mail at steve.kesler@dgif.virginia.gov or by phone at (804) 561-1447 for more information.

However, various factors including stipulations and restrictions required by the access location landowner may dictate the level in which each site can be developed following the best practices below.

Additional resources:

National Park Service’s National Water Trails System toolboxes:
http://www.nps.gov/WaterTrails/Toolbox

DCR Virginia Outdoor Plan – Water Access and Blueways Chapter:

River Access Point Recommendations and Suggested Best Practices --

- Prior to developing a new public access location, localities should consult with the Virginia Department of Conservation and Recreation (DCR) and the Virginia Department of Game and Inland Fisheries (DGIF) to ensure that a proposed location will not create any unacceptable risks to wildlife; particularly to globally rare fish and mussel species that are one of the Clinch River’s greatest assets. CRVI steering committee leadership can provide assistance to localities in their advanced consultation with wildlife agencies and experts.

- CRVI intends to attract river users/visitors with different abilities and equipment (tubes, kayaks, canoes). We encourage localities to develop and space public access locations such that each location is approximately a two hour or less canoe float from the next upstream and downstream access point. Maps of existing public access points are included in the appendix of this document. To view the most current versions of available maps, visit the DGIF website at:
http://www.dgif.virginia.gov/fishing/waterbodies/display.asp?id=147&section=maps

- Access locations that are esthetically pleasing, near towns, or are culturally interesting will only enhance the user/visitor experience. Historical, environmental, safety, and other educational signage are recommended at such access points all along the Clinch River, as part of the CRVI. CRVI envisions having consistent interpretation
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and promotional signage at all access points to ensure common design, branding, and visitor appeal. All signage erected at public access sites should be in accordance with CRVI recommendations and branding. The CRVI steering committee leadership intends to provide additional conceptual guidance for landscaping, structures, and other access site developments in the future, so localities are encouraged to consult with CRVI leadership prior to making any long-term significant improvements or constructions at public access sites.

- Each public access location should have space for at least one large truck or van with a boat hauling trailer to enter and exit the location safely and without difficulty. When full circle turning is not possible, a location that will allow safe trailer turning under careful driving is acceptable. Additional space for parking average size cars will be helpful to visitors/boaters but certainly not required.

- Each public access location should be designed, developed, and maintained such that vegetated river side buffers are protected; the parking area is graded; and there is no erosion and/or delivery of sediment from the access area into the river. Environmentally sensitive design to avoid ongoing flooding washout and applicable maintenance costs is important.

- Amenities such as bathrooms, trash cans, and picnic tables can be added to access sites if feasible, but are not required.

- Each site should be maintained and patrolled for illegal activity on a regular basis. Public hours from dawn to dusk is recommended, with access closed (i.e. locked gate) at evening closed periods if possible. No loitering or overnight camping or should be allowed unless there is a designated separate camping area.

- A maintenance plan should be developed and followed for each site, including removal of trash, mowing, limb clearing, etc.

- All public access easements secured in cooperation with private landowners should be recorded. Easement agreements should include clear terms and guidance related to development activities, maintenance, and routine site monitoring. Each landowner that agrees to grant a public access easement should have a clear and concise understanding of what they are agreeing to provide for the public benefit, and the easement should provide assurance that the site will be appropriately developed, patrolled, and well maintained. Pages 3-4 of this document contain a sample land use agreement for access point development. Copies of recorded easements are available by request.

Scott County, VA has successfully secured, developed, and maintains several public access easements. With advanced notice, county staff may be willing to provide general guidance and input by phone or e-mail, as available and feasible. There may also be other resources within the Virginia DGF and DCR that can be consulted with regarding their construction and maintenance guidelines, as well as other recommendations.

For more information about the CRVI, visit [www.clinchriver.com](http://www.clinchriver.com). Contact Christine Muehlman Gyovai of the University of Virginia’s Institute for Environmental Negotiation for more information about the initiative or to request steering committee guidance. For more specific information about the efforts of the CRVI public access points action team, contact Pam Cox of Scott County at [pcox@scottcountyva.com](mailto:pcox@scottcountyva.com) or Randall Rose of the Virginia Tourism Corporation at [rrose@virginia.org](mailto:rrose@virginia.org)
Appendix

Sample LAND USE AGREEMENT
The following is merely a sample and is not intended to be a final agreement/easement version. It is intended for general reference and consideration only. Qualified legal counsel should be utilized to develop the appropriate agreement/easement for each particular access point location and situation.

THIS AGREEMENT, made and entered into this _____ day of #--#-2012, by and between __________, hereinafter referred to as the property owner, and the COUNTY OF ____________, a political subdivision of the Commonwealth of Virginia, hereinafter referred to as the County, to enter upon and use the following described area located at ____________, tax map number ____________, latitude ____________, longitude ____________, for the purpose of accessing the Clinch River by boat launch. In order to accomplish this purpose, the County intends to perform the following on the above described land: a boat launch which shall consist of 6” of base stone and signage for public access to the boat launch location.

This agreement shall be in effect for 99 years, commencing the _____ day of March, 2012, and ending the _____ day of March, 2111.

All questions about the boat launch access, its nature, risks or hazards, have been discussed with County officials to the property owner’s satisfaction.

The County agrees to protect, indemnify and save harmless the property owner from and against any and all claims, demands, suits, liability and expense, by reason of loss or damage to any property or bodily injury to any person whatsoever, that may arise from the public access to the boat launch on the property.

The property owner agrees to notify the County of any change in land ownership, development, or use 60 days prior to the change in status.

WITNESS THE FOLLOWING SIGNATURES:

__________ (name)

STATE OF VIRGINIA
COUNTY OF ____________:

I, _________________, a Notary Public of and for the County and State aforesaid, do hereby certify that ____________, whose name is signed to the foregoing writing bearing date on the _____ day of ____________, 2012, has acknowledged the same before me in my County and State aforesaid.

Given under my hand this the _____ day of ____________, 2012.

_________________________

NOTARY PUBLIC

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Notary Registration No.: ________________

My commission expires: ________________

COUNTY

By: ________________

County Administrator

STATE OF VIRGINIA
COUNTY OF ________________:

I, ________________, a Notary Public of and for the County and State aforesaid, do hereby certify that ________________, COUNTY ADMINISTRATOR, ________________ COUNTY, whose name is signed to the foregoing writing bearing date on the ______ day of ________________, 2012, has acknowledged the same before me in my County and State aforesaid.

Given under my hand this the ______ day of ________________, 2012.

__________________________
NOTARY PUBLIC

Notary Registration No.: ________________

My commission expires: ________________
PUBLIC ACCESS MAPS
Upper Clinch (Virginia)
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Middle Clinch (Virginia)
Lower Clinch (Virginia)