Rapide Croche
Boat Transfer/Cleansing Station

Project Overview and FAQ

The Fox River Navigational System Authority (FRNSA) is announcing plans to build a boat transfer and cleansing station at Rapide Croche to open the waterway from Green Bay to the Winnebago Pool Lakes for commerce and recreational boating. Planned for 2017, the proposed boat transfer station will greatly diminish the current threat of aquatic invasive species (AIS) from impacting some of Wisconsin's most valued fisheries. It also enables boaters to be compliant in cleaning their boats and equipment, while protecting the waters from harmful hitchhikers.

The lock at Rapide Croche is non-functional and is the site of a fixed barrier constructed in 1988 to prevent the upstream migration of sea lamprey into the Lake Winnebago system. As specified in State Statute 237 a permanent barrier will remain at the Rapide Croche site. In order for boats to traverse the Lower Fox River a boat lift incorporating an aquatic invasive species (AIS) inspection and cleansing process will be required.

The Fox River Navigational System Authority has prepared an AIS Control and Monitoring Plan for the Rapide Croche Boat Transfer Station. The goal of this plan is to prevent the upstream spread of aquatic invasive species and safely transfer boats at the Rapide Croche Lock Barrier.

The plans objectives are:

1. Maintain the effectiveness of the lamprey barrier currently in place at the Rapide Croche Lock site.
2. Move boats overland in an environmentally safe manner without moving AIS.
3. Ensure that the boat cleansing process at the Rapide Croche Transfer Station meets or exceeds the Wisconsin State and Aquatic Task Force recreational boating guidelines for AIS prevention.
4. Monitor for the presence of fish and invertebrate AIS above and below the Rapide Croche transfer station.
5. Educate system users about AIS prevention.

How Will the Transfer Station Actually Work?

The transfer station will include a method for lifting boats over the Rapide Croche barrier and cleansing of aquatic invasive species (AIS) before boats are placed upstream. Once the transfer system is in place it will allow recreational boaters and commercial vessels access on the Fox River from Green Bay to the Winnebago system. The cost of boat transfer will be approximately $25 for boats under 26 feet and $50 for boats over 26 feet. The transfer station at the lock site will consist of a solid 160 foot long water proof barrier with a platform containing a 55’X19’X 6’ deep hot water basin and an inspection/spray basin. A fork lift and travel lift will transfer boats. Launch
piers will allow passenger ingress and egress, as well as temporary boat mooring. Canoe and kayak launch sites will be constructed both upstream and downstream of the station. Future plans include the possible construction of a visitor and AIS education center at the site to educate visitors of the history of the Fox River and the importance of preventing the spread of AIS.

**How Will the Cleansing Process Work? Is it Effective and Safe?**

The transfer station will accommodate boats as large as 53 feet in length, 17 foot beam and 25 tons. Drafts can be no greater than 4 feet with propellers and masts and superstructures no greater than 23 feet. Boats up to approximately 26 feet will be lifted from the water and transferred with a custom marine fork lift. Larger boats will be lifted and transferred with a marine travel lift. Boats arriving at the transfer site from the downstream side will be positioned between launch piers and passengers will depart. The station operators will then lift the boat vertically from the river and move it to the transfer platform where a hull inspection and a 110-degree high pressure pre-spray wash will be used to remove any loose material from the hull. The boat will then be lowered into a 112-degree hot water cleansing chamber for 10 minutes. As necessary, propulsion systems, intakes, and exhaust ports will be flushed with 112-degree water to remove AIS. Depending on the type of boat, the owner may be required to start and idle the engine briefly to flush the engine. Based upon a visual inspection, onboard equipment such as anchors, ropes or skis may also need to be immersed. The operators will then lift the boat from the chamber and move it to the upstream side of the station to be lowered into the river. Passengers can then re-board. The transfer time with cleansing should take approximately 30-60 minutes. Boats arriving at the upstream side that are traveling downstream will follow the same lift process but will not undergo the cleansing process. This transfer time should be approximately 20 minutes.

Studies completed by Dr. Bart De Stasio, at Lawrence University, and University of Wisconsin Sea Grant Institute concluded that the Rapide Croche boat cleansing process meets performance standards, can cleanse watercraft in a minimum amount of time and is an efficient, effective and safe way to keep AIS out of the Lower Fox and Winnebago Pool Lakes.

**Boat Transfer Station FAQs**

**Why is the boat transfer station needed?**

The Fox River Navigational System Authority's (FRNSA) plans to build a boat transfer and cleansing station at Rapide Croche will open the waterway from Green Bay to the Winnebago Pool Lakes for commerce and recreational boating. Planned for 2017, the proposed boat transfer station will greatly diminish the current threat of aquatic invasive species (AIS) from impacting some of Wisconsin's most valued fisheries. It also enables boaters to be compliant in cleaning their boats and equipment, while protecting the waters from harmful hitchhikers.

**What is the cost of the boat transfer station and how will it be funded?**

The cost to build the station is $3.8 million and will require $77,000 to operate and maintain the facility each year. It is important to note that the amount of electricity/energy required for water heating is difficult to assess and will be strongly influenced by factors such as frequency of boat transfers, weather conditions, and practices related to covering the hot water chamber when not in use (i.e. control of heat losses). Financial assistance may be available from the WDNR Lake and Aquatic Invasives Grants Program and/or the Wisconsin Recreational Boating Facilities Program supervised by the Wisconsin Waterways Commission. Both grant programs are based on cost sharing with the recipient. Lake Protection Grants up to $200,000 have been awarded for AIS-related projects. Recreational boating facilities grants can potentially cover up to 50% of total eligible costs.

Grant money may also be available from the US Fish and Wildlife Service Boating Infrastructure Grant program (eligible projects typically involve tie-up facilities for recreational boats 26 feet or more in length).
When will the station be completed?

2017

What kind of aquatic invasive species (AIS) threaten the waterway and how dangerous are they to the waters?

Sampling surveys from Dr. Bart De Stasio, at Lawrence University, and University of Wisconsin Sea Grant Institute for AIS in the lower Fox River have demonstrated that some invasive species are already present upstream and downstream of the Rapide Croche dam. Both zebra mussels and rusty crayfish were common above and below the dam in all years examined. A recent invader of the Great Lakes, the amphipod Echinogammarus ischnus, has also established populations above and below the Rapide Croche dam. Common carp occurs both above and below this point, while round goby has been found in all sites below the current invasive species barrier at Rapide Croche. White perch has been found primarily just above the Rapide Croche dam (but also below the DePere dam recently). Three other invasive species have only been found during a single season, including the zooplankton groups spiny waterflea, as well as the amphipod Gammarus fasciatus. These species do not appear to have established themselves yet, but are perhaps occasionally being brought in by boaters inadvertently. Our data do not show the presence of sea lamprey (Petromyzon marinus), which has been observed below the Rapide Croche barrier previously. Based on the results to date, it is apparent that continued efforts should provide an early warning of additional AIS that become established in the lower Fox River upstream and downstream of the Rapide Croche dam. Monitoring efforts to date have provided a solid baseline against which we can compare future changes in the composition of fish and invertebrates in the river.

Why not just keep the Rapide Croche lock closed?

The original lock will remain permanently closed. Filling in the existing lock chamber and removing the four large lock gates will provide a construction footprint for the transfer facility.

“Do Nothing,” or leaving the lock and site as is, was a project alternative considered. The alternative was abandoned because it does nothing to help deal the spread of AIS due to boats and trailers that are presently traveling between the Great Lakes and Winnebago area lakes.

What assurances are there that the boat transfer station will keep the AIS from getting through?

Hot water cleansing is the method recommended by the Aquatic Nuisance Species Task Force. The Recreational Boating Guidelines for AIS removal recommends that boaters:

- Inspect and remove aquatic plants, animals and mud from the boat, trailer and equipment.
- Drain all water from the equipment. (boat, motor, bilges, transom wells, live wells, etc.)
- Dispose of unwanted bait in the trash, not in the water.
- Rinse the boat and equipment with hot water. (greater than 104 degrees) and/or high pressure water, OR
- Let the boat dry in the sun for five days.
Monthly monitoring at sample stations upstream/downstream of Rapide Croche for AIS is being carried out by Lawrence University. Periodic reports of the monitoring results will be posted on the FRNSA website and will be presented at state and regional meetings. If the monitoring detects a new aquatic invasive species in the river pool above Rapide Croche, the WDNR will be notified immediately. Though the organism source may be a trailered boat, consideration will be given to closing boat ramps on the pool and Kaukauna Lock #5 to help isolate the AIS.

**If boaters can currently trailer their boats to the Winnebago Pool Lakes, what is to stop them from continuing to do so?**

Despite the efforts that will be made at the proposed transfer and AIS cleansing station, trailered boat access ramps still represent a significant threat for AIS introductions through other access points. There are over 60 access points for boats on the Lake Winnebago system. Based on the number of available parking spaces in just the primary launch sites within the system and assuming only 30% capacity weekdays and double that on weekends, more than 23,000 boats may be launched within the Winnebago system in a given season. This number greatly exceeds the 1300 boats expected to pass through the proposed boat transfer at Rapide Croche during an annual period of operation. Unless all boaters and anglers take precautions to prevent the spread of AIS from lake to lake via trailered boats, this vector will remain a serious threat to the Lake Winnebago system. Introduction of new AIS into the Lake Winnebago system could occur regardless of the proposed Project or its level of use.

**What is the cleansing process?**

The boat lift system must completely separate the boat from the water and allow inspection and treatment of the hull so that organisms attached to the hull or lifting equipment may be noticed. Water draining from the boat while it is being cleaned must not be allowed to flow to the upstream side of the transfer station.

Boaters utilizing the transfer station will have to prepare their boats for transfer. This may involve cleaning of hulls, bilge, and other equipment prior to approaching the station. Live wells and bait buckets must be emptied. Boats with hulls heavily encrusted with algae or organisms will be turned away.

Once boats are adequately prepared, the boat will be lifted from the water and moved to the cleaning process.

The hull will be thoroughly sprayed with 110 degree high pressure water to remove AIS that may be adhering to surfaces of the boat. (pre-wash process)

The boat will be floated in a 112- degree F water bath for at least 10 minutes to kill target AIS.

Propulsion systems, intakes, and exhaust ports must be cleaned/flushed with 112-degree F water (depending on the type of boat, raw water systems may be operated in the bath to ensure flushing).

Depending on visual conditions, onboard equipment, including ropes, anchors, chains, skis, and fishing equipment must be washed and immersed in 112-degree F water (Note: no live bait or fish will be permitted to move upstream through the station).

Boat lifting devices (i.e. hoist straps and truck forks) will be treated with 112-degree F water for ten minutes along with the boat before making contact with upstream water.

Boats containing ballast bags will be turned away.
If heating the water at 140 degrees is ideally recommended to be safe, why not heat the water to that temperature?

The lower water temperature and longer contact time determined by research done by Dr. DeStasio and others is lethal to target AIS. In addition to killing the target AIS, this lower temperature saves money in water heating cost and is somewhat safer for humans. Some of the boat manufacturers contacted early in the project evaluations indicated that immersion in a water bath of 145 degrees for even a relatively short duration (2 minutes) could adversely affect gaskets, hull finish and may violate the warranty. However, one area manufacturer stated their hulls and equipment are routinely tested in water at this temperature with no negative effect (see documentation in Preliminary Engineering Study Report).

Is there a size limit for boats going through the transfer station?

Yes. The transfer station will accommodate boats as large as 53 feet in length, 17 foot beam and 25 tons. Drafts can be no greater than 4 feet with propellers and masts and superstructures no greater than 23 feet. Boats up to approximately 26 feet will be lifted from the water and transferred with a custom marine fork lift. Larger boats will be lifted and transferred with a marine travel lift. The transfer station cleansing system can easily serve small boats down to canoe and kayak size.

How long will it take for boats to go through the boat transfer station?

Boat transfer cycle times are anticipated to be in the range of 15 to 20 minutes for small boat transfers with a fork truck and 30 to 60 minutes for large boat transfers with a mobile hoist. The time estimate can be easily influenced by boat traffic.

Do boaters stay in their boats during the transfer?

No. Safety concerns would require boaters to leave their vessel during the cleansing process. The owner/operator along with the station inspector/operator would board the vessel to operate systems while in the hot water bath portion of the cleansing cycle.

What do the boaters do while they are waiting for their boat to be transferred?

Boat passengers will exit their boats on docks installed at the upstream and downstream launching pier locations. Stairs and walking paths will route passengers around the operational area of the transfer station. Restroom and rest area facilities (i.e. pavilion and picnic tables) for passenger and visitor use will be available. An information kiosk and education center focusing on AIS control will also be on-site. Other features being considered are:

- Museum or Interpretive Center
- Store and/or gift shop
- Classroom/education facilities
- Mooring dockage on upstream and downstream sides of the facility
- Picnic and playground area
- Camp sites

How safe is the cleansing system on boat finishes?

Some of the boat manufacturers contacted early in the project evaluations indicated that the planned immersion in a water bath of 112 degrees for ten minutes should not affect the hull finishes. One area manufacturer stated their hulls and equipment are routinely tested in water heated to 140 degrees F with no negative effect (see documentation in Preliminary Engineering Study Report).
Is there any risk of structural damage to the boats? What happens if there is damage?

Use of the transfer is at the owners’ risk. Operators are trained to safely lift and transport vessels using station equipment and will consult manufacturers’ data for proper handling. The Authority maintains willful negligence liability insurance for all its operations and operators.

Will there be a fee for transferring boats?

Yes. The proposed fee is $25 for boats shorter than 26’. Boats 26’ and larger would pay $50.

Are there plans to have more boat transfer stations built and where would they go?

The Authority does not plan to build additional boat transfer and cleansing sites. The authority believes the system at Rapide Croche can serve as a prototype for other installations on the Winnebago System and elsewhere and will share knowledge where requested.

What happens to the contaminated water and debris that is cleaned off of boats traveling upstream?

The water and residue used during the pre-wash process drains back to the downstream side of the facility. Contaminants removed while in the hot water bath are separated from the water by an air flotation treatment process. The solids are decanted off and stored in a waste tank for regular transport to a local disposal site.

Has a boat transfer station like this been built anywhere else?

No. That is why many years of scientific research and study have gone into developing the Preliminary Engineering Study Report to develop plans for the Rapide Croche Boat Transfer and Cleansing Station and to serve as a model for others.

Do your part to help control the AIS threat.

Two quality websites with current information regarding AIS control.

Protect Your Waters  
http://www.protectyourwaters.net/

Aquatic Nuisance Species Task Force  
http://anstaskforce.gov/default.php

Lots of good, useful information for all of us to use in the control of nuisance species.  
http://www.anstaskforce.gov/default.php
Figure No.

Project Location and Topography

Project Location:

Client/Project

Figure No.

Title

Prepared by on

Technical Review by on

Independent Review by on

Oneida

Hobart

Osborn

Black

Creek

Bellevue

Eaton

Lawrence

De Pere

Ledgeview

Glenmore

Rockland

Freedom

Center

Wrightstown

Morrison

Grand

Chute

Buchanan

Appleton

Holland

Franklin

Maple Grove

Brillion

Woodville

Harrison

Menasha

Neenah

Brown

Calumet

Manitowoc

Outagamie

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Project Location and Topography

Fox River Navigational System Authority
Rapide Croche Boat Transfer and Aquatic Invasive Species Learning Station

Notes
1.
2.
3.

Coordinate System: NAD 1983 StatePlane Wisconsin Central FIPS 4802 Feet

Data Sources Include: Stantec and USGS

Base Data: USGS 7.5' Topographic Quadrangles

Keywords: Watershed assessment; Stream data; Habitat mapping; Wetland

Legend

Approx. Project Location

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Legend

Approx. Project Location

Notes
1. Coordinate System: NAD 1983 StatePlane Wisconsin Central FIPS 4802 Feet
2. Data Source: USGS and USGS
3. Base Data: USGS 7.5' Topographic Quadrangles
Site Development Plan

Rapide Croche Boat Transfer Station and Aquatic Invasive Species Cleansing Station

Notes:
1. Coordinate System: NAD 1983 StatePlane Wisconsin Central FIPS 4802 Feet
2. Data Sources include: Stantec, and Fox River Navigational System Authority

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Figure No.

*Drawing Not To Scale
Exotic/invasive species

The Rapide Croche Lock was permanently closed in the late 1980s to prevent invasive species, like sea lampreys from traveling upstream into Lake Winnebago. While some species have already made it into the lake, others are threatening. Once established in a water system, invasive species compete with native species for food, shelter and breeding habitat. Below is a list of a few of the species threatening Lake Winnebago.

ALREADY IN LAKE WINNEBAGO

ZEbra mussel
CARP
RUSTY CRAYFISH
EURASIAN WATER MILFOIL

NOT IN LAKE WINNEBAGO

SEA LAMPREY
ROUND GOBY
SMELT
WHITE PERCH
ALEWIFE
RUFFE
SPINY WATER FLEA and FISHHOOK WATER FLEA

Source: Wisconsin Department of Natural Resources

Joe Heller/Press-Gazette
The World's Number One Mobile Boat Hoist

MOBILE

BOAT HOISTS
# STANDARD SPECIFICATIONS

<table>
<thead>
<tr>
<th>General Information</th>
<th>US Measure</th>
<th>Metric</th>
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<td>Rated lifting capacity</td>
<td>25,000 lbs</td>
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<td>Shipping weight</td>
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<td>Negative drop</td>
<td>12(^\circ)</td>
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<tr>
<td>Wheelbase</td>
<td>10(^\circ)</td>
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<tr>
<td>Tall swing radius</td>
<td>15(^\circ)</td>
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<td>Aisle for 90° turn (add to boat length)</td>
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<td>Maximum mast forward tilt</td>
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<td>Maximum mast backward tilt</td>
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<th>Forks</th>
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<td>Fork cover type</td>
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<tr>
<th>Engine</th>
<th>Cummins QSB4.5T - Tier 3</th>
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<td>Horsepower</td>
<td>130 HP @ 2300 RPM / 97 KW</td>
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<td>Cooling</td>
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<tr>
<td></td>
<td>102,900 lbs</td>
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| Brakes                                   | Wet Type                  | |

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<td>Steering</td>
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<tr>
<td>First speed</td>
<td>1.9 mph</td>
<td>3.1 kmph</td>
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<td>Second speed</td>
<td>3.5 mph</td>
<td>5.6 kmph</td>
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<tr>
<td>Third speed</td>
<td>6.0 mph</td>
<td>9.7 kmph</td>
</tr>
<tr>
<td>Fourth speed</td>
<td>9.5 mph</td>
<td>15.3 kmph</td>
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<tr>
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<td>Tire pressure (front)</td>
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<td>Tire pressure (back)</td>
<td>145 PSI</td>
<td>10.0 Bars</td>
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<td>Exterior Paint</td>
<td>Blue &amp; Black</td>
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</tr>
<tr>
<td>Color</td>
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<td></td>
</tr>
<tr>
<td>Primer</td>
<td>2-part Epoxy</td>
<td></td>
</tr>
<tr>
<td>Primer (mast &amp; body)</td>
<td>Zinc and 2-part Epoxy</td>
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</tr>
<tr>
<td>Paint</td>
<td>2-part Urethane</td>
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</table>

## STANDARD EQUIPMENT

- Wide track for improved stability
- Swing-out forks and shift control
- Remote control for lift operation
- Side mounted cab
- Heavy duty 4-stage interlocking mast
- Remote cooling
- Wet-disk brakes and heavy duty axle
- Pilot operated controls
- Electronic engine display
- 316 Stainless steel tube lines
- Remote grease lines for mast
- Galvanized cab
- Meets CE and USA standards

## OPTIONS

- Solid non-marking tires
- Solid tires
- Galvanized forks
- Galvanized carriage
General Prevention Procedures for Stopping Aquatic Hitchhikers: A must read for all recreational users

Follow a general set of procedures every time you come in contact with any body of water. By doing so, you can protect your waters from harmful aquatic hitchhikers. Because you never know where a nuisance species has been introduced, but has yet to be discovered.

There are hundreds of different harmful species ranging from plants, fish, amphibians, crustaceans, mollusks, diseases or pathogens. Some organisms are so small, you may not even realize they are hitching a ride with you. So, it is important to follow this general procedure every time you leave any body of water.

Remove all visible mud, plants, fish/animals.
Before leaving any body of water, it is important to examine all your equipment, boats, trailers, clothing, boots, buckets etc and:

- Remove any visible plants, fish or animals.
- Remove mud and dirt since it too may contain a hitchhiker.*
- Remove even plant fragments as they may contain a hitchhiker.*
- Do not transport any potential hitchhiker, even back to your home. Remove and leave them at the site you visited.

*The larvae (immature form) of an animal can be so tiny that you cannot see it. However, it can live in mud, dirt, sand, and on plant fragments.

Eliminate water from all equipment before transporting anywhere.
Much of the recreational equipment used in water contains many spots where water can collect and potentially harbor these aquatic hitchhikers. Thus, make sure that you:

- Eliminate all water from every conceivable item before you leave the area you are visiting.
- Remove water from motors, jet drives, live wells, boat hulls, scuba tanks and regulators, boots, waders, bait buckets, seaplane floats, swimming floats.
- Once water is eliminated, follow the cleaning instructions listed below.

Clean and dry anything that came in contact with the water.
(boats, trailers, equipment, dogs, boots, clothing, etc.). Basic procedures include:

- Use hot (< 40° C or 104° F) or salt water to clean your equipment.
- Wash your dog with water as warm as possible and brush its coat.
- The following recipes are recommended for cleaning hard-to-treat equipment that cannot be exposed to hot water:
  - Dipping equipment into 100% vinegar for 20 minutes will kill harmful aquatic hitchhiker species.
  - A 1 % table salt solution for 24 hours can replace the vinegar dip. This table provides correct mixtures for the 1 % salt solution in water:

<table>
<thead>
<tr>
<th>Gallons of Water</th>
<th>Cups of Salt</th>
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<tbody>
<tr>
<td>5</td>
<td>2/3</td>
</tr>
<tr>
<td>10</td>
<td>1 1/4</td>
</tr>
<tr>
<td>25</td>
<td>3</td>
</tr>
<tr>
<td>50</td>
<td>6 1/4</td>
</tr>
<tr>
<td>100</td>
<td>12 2/3</td>
</tr>
</tbody>
</table>

- If hot water is not available, spray equipment such as boats, motors, trailers, anchors, decoys, floats, nets, with high-pressure water.
General Procedures for Preventing the Transportation of Aquatic Hitchhikers

- **DRY Equipment.** If possible, allow for 5 days of drying time before entering new waters.

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**Do not release or put plants, fish or animals into a body of water unless they came out of that body of water.**

Also, do not release them into storm drains, because most storm drains lead to water bodies or wetlands. This is an important prevention step because many plants and animals can survive even when they appear to be dead. The two categories below describe some common situations where people may feel compelled to release aquatic plants or animals.

- **Aquarium and Aquatic Pets:** If your family gets tired of its aquarium or aquatic pets, do not release anything from the aquarium (water, plants, fish or animals) into or near a body of water or storm drain. Explain to your children how you could be hurting all of the streams and lakes around the country and killing other fish and animals that already live in the water.

  If you cannot find a home for the critters in your aquarium, bury them. Dump the water into the toilet or yard, far away from storm drains.

- **Bait:** Whether you have obtained bait at a store or from another body of water, do not release unused bait into the waters you are fishing. If you do not plan to use the bait in the future, dump the bait in a trashcan or on the land, far enough away from the water that it cannot impact this resource. Also, be aware of any bait regulations, because in some waters, it is illegal to use live bait.

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The Stop Aquatic Hitchhikers website is part of the ANS Task Force public awareness campaign and is sponsored by the U.S. Fish and Wildlife Service and the U.S. Coast Guard.