

# TWO RIVERS JOURNAL



1993 Free Newspaper

The Official Newspaper of the St. Croix National Scenic Riverway



## Zebra Mussels Threaten St. Croix River

by Paul Burke, Wildlife Biologist, U.S. Fish and Wildlife Service

Will 1993 be remembered as the year when zebra mussels arrived in the St. Croix River? Some believe so, but no one is certain. We do know that zebra mussels are present in the upper Mississippi River. In 1992, the U.S. Army Corps of Engineers found sparsely distributed zebra mussels just below Lock and Dam 10 at St. Anthony Falls in Minneapolis. Last fall, the U.S. Fish and Wildlife Service discovered evidence of successful reproduction of zebra mussels below Red Wing, Minnesota. A survey of the river from Prescott, Wisconsin to Stillwater, Minnesota, in September, 1992, found no zebra mussels. Nevertheless, this exotic species poses a direct and serious threat to the St. Croix River system.

Where zebra mussels came from and their biology explains why they pose a serious threat to lakes and rivers. This species' journey to North America began almost two centuries earlier with the construction of canal systems that allowed them to spread from their home waters in Eastern Europe. They moved slowly into Western Europe, arriving at Atlantic ports in the early 1800's. It is believed that zebra mussels were introduced into the Great Lakes in 1985 or 1986, when a transoceanic ship discharged infested freshwater ballast into Lake St. Clair. This lake and Lake Erie are heavily infested today. Other Great Lakes are approaching a similar condition, and zebra mussels have invaded inland rivers to include the Ohio, Illinois, and Mississippi.

The zebra mussel's rapid invasion and colonization of new areas is mainly a result of its reproductive strategy. Given appropriate environmental conditions, a mature female can produce 30,000 or more young in a single season. These young float freely in the water column for two to four weeks, then attach to any solid surface, using sticky, fibrous threads called byssal threads. Their ability to feed freely on plankton and attach to almost any solid surface allows them to move and infest new areas. Watercraft are viewed as a primary mode for the rapid spread of this exotic species.

Economic, recreational, and natural resources are threatened by the zebra mussel. Long-term ecological impacts are unknown, but they can alter water quality, upset food chains, and attach to other animals such as crayfish and mussels. Zebra mussels attach to exposed shells of native mussels; this can interfere with their ability to open and close their shells, resulting in starvation, suffocation, and reproductive failure. This can also impede movement and burrowing.

Zebra mussels are voracious filter feeders, unrivaled in their capacity to filter water. An individual can filter about one quart of water per day. Noticeable changes in water clarity on the Great Lakes have been documented. In the filtering process, these exotics consume all sizes of

*Continued on page 6*

### FROM THE SUPERINTENDENT

By Superintendent Anthony L. Andersen

On behalf of the National Park Service, welcome to the St. Croix National Scenic Riverway. This year we celebrate the 25th anniversary of the original Riverway which was added to the National Park System in 1968. This section of the Riverway includes the area from the headwaters of the St. Croix to the dam at St. Croix Falls/Taylor's Falls and the Namekagon River, major tributary of the St. Croix. The Lower St. Croix, from St. Croix Falls/Taylor's Falls to the Mississippi was added in 1972.

The NSR designation has afforded these rivers and their immediate environments important protection, yet significant threats exist. This issue of the *Two Rivers Journal* addresses a new menace, the zebra mussel. An exotic species from Eastern Europe, the zebra mussel has the potential to dramatically impact the ecosystem of the river, affect recreation and result in high economic costs to recreational and industrial resources. A proposed response plan relies heavily upon voluntary participation. Public land managers recognize that successful protection and preservation of our parks and natural resources ultimately depends on the support and active involvement of each citizen. None of us can accomplish much alone, but as a team we can pass on a high quality river system to our children and grandchildren.

I invite you to read the articles in this paper and learn about zebra mussels in order to prevent their infestation of the St. Croix River.

I wish each of you a safe and enjoyable experience on the St. Croix National Scenic Riverway.

### Boating restrictions in effect on Lower St. Croix River

*See page 7*

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## Camping

Camping provides excellent opportunities to experience the Riverway. Camp sites are available on a first come, first serve basis. There is a 1 night camping limit at all campsites above Nevers Dam, located 8 miles north of St. Croix Falls. Camping is restricted to designated sites above Nevers Dam. There is a 7 day limit at all sites below Nevers Dam to Stillwater, MN. No user fees are charged.

**WALK-IN SITES** - Camping is available a short distance from parking areas at the following sites; Phipps Landing, Earl Park, Whispering Pines Landing and Howell Landing on the Namekagon River. Riverside Landing, Old Railroad Bridge, Sunrise Ferry, Nelson's Landing, Norway Point and Sandrock Cliff on the St. Croix River offer camping. These sites are for tent camping only and gear must be carried from your vehicle to the campsite. Contact a Riverway visitor center for more information.

**WATER ACCESS SITES** - Many primitive camping sites with fire rings have been established for river users.

Most have primitive toilets. A few areas have been closed to camping because of overuse, the presence of nesting sites or for other reasons. Please observe these closures.

**CAMPFIRES** - From Nevers Dam north, fires are permitted only in steel fire rings. Be sure your campfire is out and cold before you leave the site. Open fires will be prohibited during periods of very high or extreme fire danger. Down and dead wood may be collected for campfires.

**STATE PARK SITES** - Seven State Parks are located along the St. Croix River. Within the parks you must stay in designated canoe sites or in developed campgrounds. State Parks charge entrance fees and camping fees. For more information contact the Minnesota Department of Natural Resources or the Wisconsin Department of Natural Resources.

## Lodging and Visitor Information

**OTHER ACCOMODATIONS** - Motels, cabins and resorts are available along the Riverway, nearby lakes and rivers. Contact local Chambers of Commerce for lodging information.

**TO OBTAIN MORE INFORMATION IN MINNESOTA CONTACT** - DNR Information Center, 500 Lafayette Road, St. Paul, MN 55155-4040 (612) 296-6157, 1-800-766-6000  
Minnesota Office of Tourism, 100 Metro Square, 121 7th Place East, St. Paul, MN 55101, 1-800-657-3700.

**IN WISCONSIN CONTACT** - DNR Bureau of Parks and Recreation, P.O. Box 7921, Madison, WI 53707, (608) 266-2181.

Wisconsin Division of Tourism, Department of Development, P.O. Box 7606, Madison, WI 53707-7606, 1-800-ESCAPES.



## Visitor Response

If you have questions or need information to plan your visit, park rangers are available at four visitor centers to assist you. These centers are open seven days per week during the summer. We like to hear from you.

If you have concerns about our management of the Riverway, or if you can suggest ways to improve visitor services and protect resources, let us know.

Call us at (715) 483-3284 or write:

Superintendent  
St. Croix National Scenic Riverway  
P. O. Box 708  
St. Croix Falls, WI 54024

## Ranger-led Activities



A full schedule of Ranger-led activities are offered during the summer. Contact a visitor center for more information. Subject to availability, Rangers lead special activities for groups. Contact your nearest visitor center to make arrangements.

## Canoeing



The St. Croix and Namekagon rivers provide excellent canoeing opportunities for most of their lengths. The Namekagon varies from an intimate cold-water trout stream closed in by predominantly coniferous forest, to a wider slow moving body of water flowing through marsh and swampland. The St. Croix River changes from narrow, to broad and shallow, to wide and deep, providing many moods and experiences.

Average travel time by canoe is three miles an hour or 15 miles a day. The river's shallowness, mild current, and lack of difficult rapids (Class 1), makes these rivers good for beginning canoeists and family groups. Caution is advised during times of high water as rapids become more dangerous.

Segment maps are available at visitor centers and some landings. Seven different maps provide detailed information on campsites and other

facilities, river distances and hazards.

A popular weekend river trip is **County K to Riverside** on the Namekagon. This is a "Backwoods" stretch, with few sounds of civilization and some ruffles for a change of pace. Marsh habitats contrast with steep, sandy banks, and if you are lucky, ducks, herons, deer, eagles and ospreys may be seen. Fishing for small mouth bass can also be enjoyed. A number of campsites are available along this stretch so take your time.



# Hiking Trails

Although the St. Croix Riverway is most often explored from the water, access by foot is also possible. Spring and fall are good seasons for walking some of the easy trails that border the river. Here are a few suggestions:

### Namekagon District

**Name:** Trego Nature Trail  
**Nearest Town:** Trego, WI  
**Trail Location:** The trail starts by the Namekagon River Bridge on Highway 63, about 1/4 mile East of the Visitor Center.  
**Length:** 3 mile loop trail

**Name:** Trego Lake Trail (also cross-country skiing)  
**Nearest Town:** Trego, WI  
**Trail Location:** 1 mile north of Trego on Highway 53 to North River road, turn left (West); 2 miles to parking lot on the South side of the road.  
**Length:** A series of three loops with a combined total of 3.6 miles.

**Name:** Springbrook Wayside Trail  
**Nearest Town:** Springbrook, WI  
**Trail Location:** 2 miles East of Springbrook on Highway 63. The trail is at the East end of the wayside area.  
**Length:** 1/4 mile round trip

**Name:** Namekagon-Court Oreilles Portage Trail  
**Nearest Town:** Hayward, WI  
**Trail Location:** 4 miles South of Hayward on Highway 27 to Rainbow road, turn right (West); 1 1/4 miles to Colbroth Road, turn right (North); 1/4 mile to the trail marker.  
**Length:** 1/4 mile

### Marshland District

**Name:** Sandrock Cliff Trail (also cross-country skiing)  
**Nearest Town:** Grantsburg, WI  
**Trail Location:** Main trailhead is on Highway 70 immediately adjacent to the Highway 70 Bridge over the St. Croix River (Wisconsin side).

**Length:** 5 miles total  
 Another access is at the Sandrock Cliffs Campground. Travel about 2 miles East of the Visitor Center, turn left (North) on Soderbeck Road; 1 mile to Benson Road, turn left (West); follow the road to dead end.

**Name:** Willard Munger Trail  
**Nearest Town:** Grantsburg, WI  
**Trail Location:** For proper orientation to the trail, we suggest you stop in at the Marshland Visitor Center for directions.  
**Length:** Incomplete at this time. 4 miles of finished trail from Highway 70 Visitor Information Center North to Snake River Landing (State Trail section continues North through Chengwatana State Forest).

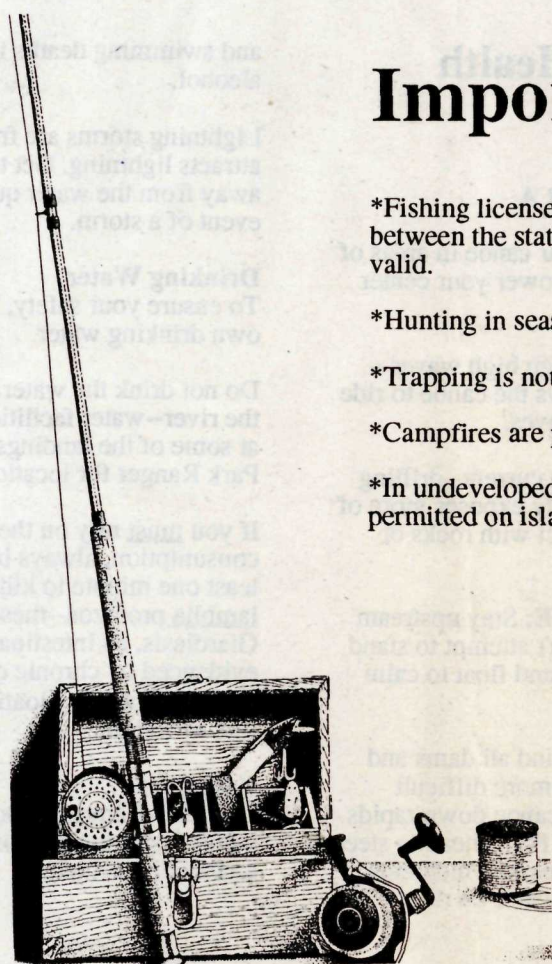
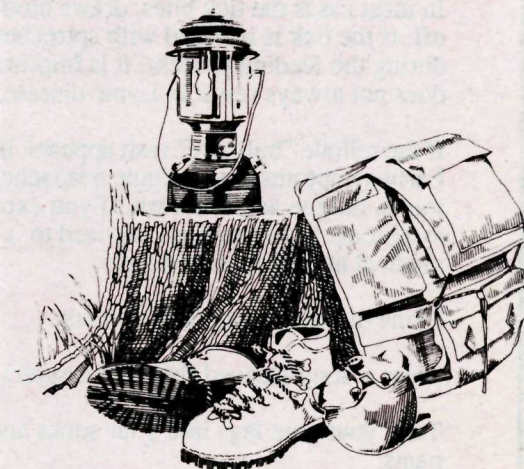
### Lower District

**Name:** Indianhead Flowage Trail  
**Nearest Town:** St. Croix Falls, WI  
**Trail Location:** Off Highway 87 on the North end of St. Croix Falls, about 1/4 mile above Lion's Club City Park. You may park in unpaved parking lot.  
**Length:** 3/4 mile



## Important Information

- \*Fishing licenses are required. Where the St. Croix River is the boundary between the states of Minnesota and Wisconsin, a license from either state is valid.
- \*Hunting in season is permitted. Appropriate state licenses are required.
- \*Trapping is not allowed along the Riverway.
- \*Campfires are permitted only in steel fire rings upstream from Nevers Dam.
- \*In undeveloped areas downstream from Nevers Dam, small campfires are permitted on islands and sandbars.



- \*All mussels (freshwater clams) and their empty shells are protected. Please do not disturb them. Several endangered species inhabit the St. Croix and Namekagon rivers.
- \*Observe Slow Speed and No Wake zones.
- \*A canoe registration is required if your state of residence requires one.
- \*Vehicle use is restricted to established roadways. ORVs are prohibited.
- \*No fireworks are allowed along the Riverway.
- \*No bicycles allowed on any National Park Service hiking trail.



## THE RIVERWAY OFFERS THREE DISTINCT RECREATIONAL EXPERIENCES FOR THE VISITOR:

The Namekagon River and upper portion of the St. Croix River are characterized by narrow, twisting channels bordered by predominantly coniferous forests. These portions are best navigated by canoe.

The section of the St. Croix between Highway 70 and St. Croix Falls broadens and becomes a gently flowing river banked by floodplain forests. Fishing boats with small motors can be easily used on this portion of the river.

The lower river main channel, from Taylors Falls to the Mississippi is used by larger motorized craft, water skiers and sailboaters. Even so, canoeists can enjoy the solitude of backwaters and sloughs.

REMEMBER...THE MORE  
QUIET YOU ARE...  
THE MORE WILDLIFE  
YOU'LL SEE...  
(SOUND CARRIES ON  
THE WATER).



### Lyme Disease



Lyme Disease is spread from the bite of the deer (or bear) tick, which varies in size from microscopic to 1/16 of an inch.

Lyme disease is an infection caused by a coiled bacterium - a spirochete - called *Borrelia burgdorferi*. The spirochete is transmitted to humans by the bite of a deer tick. The tick bite is not painful, and since the deer tick is so small it often goes unnoticed. In most cases the tick bites, draws blood for nourishment, and drops off. If the tick is infected with spirochetes, it may transmit them during the feeding process. It is important to realize that a tick bite does not always result in Lyme disease.

If the telltale "bullseye" rash appears, it may indicate a tick bite. Early symptoms may include headache, chills, nausea, fever, aching joints, fatigue and skin rash. If you experience any of these symptoms and have been exposed to a tick, it is important to seek medical attention immediately.

Lyme disease prevention pointers:

Wear a long-sleeved shirt and trousers when hiking.

Tuck your pant legs into your socks and tuck your shirt into your pants.

Avoid grassy areas and deer trails, the tick's prime habitat.

Wear light colored clothing--it's easier to see and remove ticks.

Check your entire body several times a day for ticks, especially hard-to see areas like your hair.

What to do if bitten by a tick:

Remove the tick as soon as possible. The easiest method is to grasp the tick with fine tweezers as near to the skin as you can, and gently pull out. Check to see whether mouth parts broke off in the wound. You may want to save the tick in a small jar for later identification. If so, seek medical attention to remove them. If any symptoms of Lyme Disease appear in the following week to several months, see a physician immediately.

### For Your Health and Safety

#### Canoeing - ALWAYS WEAR A LIFEJACKET!!!

Kneel down in your canoe in areas of fast water--it will lower your center of gravity.

Back-paddle through high waves--going slower allows the canoe to ride up and over the waves.

Stay parallel to the current--drifting along sideways only exposes more of the canoe to contact with rocks or large waves.

**IF YOU CAPSIZE:** Stay upstream of your canoe, don't attempt to stand in strong currents and float to calm water.

Portages exist around all dams and along some of the more difficult rapids. Line your canoe down rapids you are unsure of. Plan ahead to steer around trees (strainers) which may have fallen in the water on river bends.

#### THE BIG RISK: DON'T DRINK ON THE RIVER.

--Approximately half of all boating

and swimming deaths involve alcohol.

Lightning storms are frequent. Water attracts lightning. Get to shore and away from the water quickly in the event of a storm.

#### Drinking Water

To ensure your safety, bring your own drinking water.

Do not drink the water directly from the river--water facilities are provided at some of the landings--check with a Park Ranger for locations.

If you must rely on the river water for consumption, always boil it for at least one minute to kill any giardia lamblia protozoa--these may cause Giardiasis, an intestinal disease evidenced by chronic diarrhea, abdominal cramps, bloating, fatigue and loss of weight.

#### Valuables

Canoes--Campers--Do not leave valuables or any personal property in unattended vehicles.



## NEED HELP?

### CONTACT YOUR NEAREST VISITOR CENTER...



Four Visitor Centers, located on the upper, middle and lower parts of the Riverway, are staffed by park employees available to provide information and suggestions to make your trip enjoyable. Stop at a center to pick up maps and area-wide brochures or call to obtain up-to-date information on camping and river conditions. Books, field guides, postcards and posters are available for purchase at all four Visitor Centers.

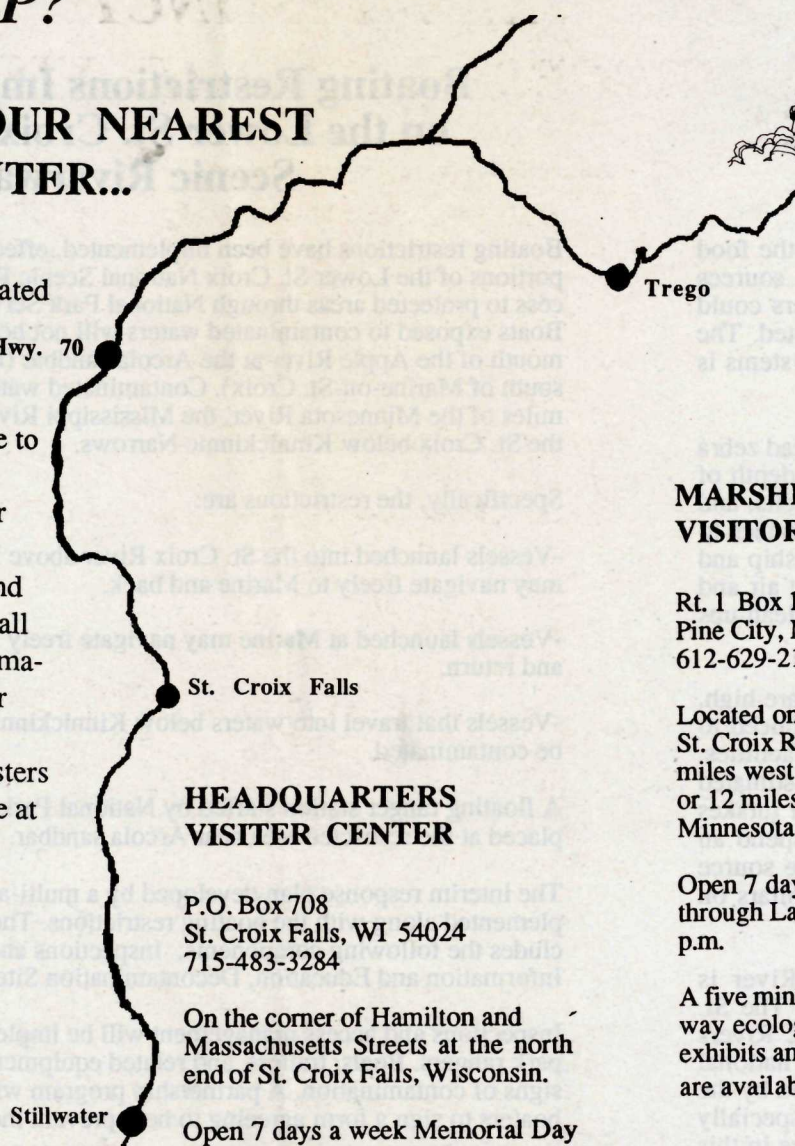
#### LOWER DISTRICT VISITOR CENTER

117 South Main Street  
Stillwater, MN 55082  
612-430-1938

Located in downtown Stillwater, Minnesota.

Open 7 days a week Memorial Day through Labor Day, 9:00 a.m. to 5:00 p.m., Monday through Thursday and 9:00 a.m. to 6:00 p.m., Friday through Sunday. The rest of the year the Center will be open 9:00 a.m. to 5:00 p.m., Friday, Saturday and Sunday.

A twelve minute video, *St. Croix Reflections* is shown on request. Exhibits on wildlife of the St. Croix and a children's touch table are available.



#### HEADQUARTERS VISITOR CENTER

P.O. Box 708  
St. Croix Falls, WI 54024  
715-483-3284

On the corner of Hamilton and Massachusetts Streets at the north end of St. Croix Falls, Wisconsin.

Open 7 days a week Memorial Day through Labor Day, 8:30 a.m. to 5:00 p.m., Monday through Thursday and 8:30 a.m. to 6:00 p.m., Friday through Sunday. The Center is open 5 days a week, September through May, 8:30 a.m. to 4:30 p.m., Monday through Friday.

A twelve minute movie, *St. Croix Reflections*, and a 5 minute slide program are shown on request. Exhibits on logging, Scandinavian immigration, and a children's touch table are available.

#### MARSHLAND DISTRICT VISITOR CENTER

Rt. 1 Box 134  
Pine City, MN 55063  
612-629-2148

Located on the Minnesota side of the St. Croix River, on Highway 70, 5 miles west of Grantsburg, Wisconsin or 12 miles east of Rock Creek, Minnesota.

Open 7 days a week, Memorial Day through Labor Day, 8:30 a.m. to 5:00 p.m.

A five minute slide program, Riverway ecology and Native American exhibits and a children's touch table are available.

#### NAMEKAGON DISTRICT VISITOR CENTER

Box 100  
Trego, WI 54888  
715-635-8346

Located along the Namekagon River about seven miles north of Spooner, Wisconsin just off Highway 53 on Highway 63.

Open 7 days a week Memorial Day to Labor Day, 8:00 a.m. to 4:30 p.m.

A five-minute slide program, fur trade and logging exhibits and children's touch table are available.

### TWO RIVERS JOURNAL

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### CANOE RENTAL SERVICE FOR THE ST. CROIX AND NAMEKAGON RIVERS

**\*\*Bear Country Sporting Goods**  
P.O. Box 36  
Drummond, WI 54832 715-739-6645

**\*\*Glacier Pines Outfitters**  
P.O. Box 413  
Cable, WI 54821 715-794-2055

**\*Big Brook Bait Shop & Laundromat**  
P.O. Box 308, HWY 63 S  
Cable, WI 54821 715-798-3310

**\*\*Wild River Inn**  
12355 River Rd.  
Hayward, WI 54843 715-634-2631

**\*\*Cardarelli's Log Cabin Resort, Campground and Canoe Rental**  
Route 2, Box 2019  
Trego, WI 54888 715-635-2959

**\*\*Jack's Canoe/Tube Rental & Campground**  
Route 2, Box 2018  
Trego, WI 54888 715-635-3300/3211

**\*\*Namekagon Outfitters**  
Route 2, Box 2064  
Trego, WI 54888 715-635-2015  
1-800-547-9028

**\*\*Quiet Sports Outfitters**  
Route 2, Box 2039  
Trego, WI 54888 715-635-7047

**\*\*Pappy's Bar Canoe Rental & Shuttle Service**  
Route 1, Box 1302  
Trego, WI 54888 715-466-2568

**\*\*Namekagon Canoe Rental**  
Route 1, Box 1289  
Trego, WI 54888 715-466-2691

**\*\*Old Homestead Restaurant, Tavern and Resort**  
Route 1, Box 446  
Gordon, WI 54838 715-376-4491

**\*\*Bosley's Upper Webb Lake Campground**  
30925 Namekagon Road  
Danbury, WI 54830 715-259-3363

**\*\*Gulden's Yellow River Campground, Canoe Rental & Shuttle Service**  
P.O. Box 67  
Danbury, WI 54830 715-656-4402

**\*\*Wild River Outfitters Canoe Rental & Shuttle Service**  
15177 Hwy 70  
Grantsburg, WI 54840 715-463-2254

**\*\*Wild River Inn Canoe/Tube Rental & Shuttle Service**  
12355 River Rd.  
North Branch, MN 55056 612-674-9967

**\*\*Merill's Landing**  
Taylors Falls, MN 55084  
612-465-3523

**\*\*Taylors Falls Canoe Rental**  
P.O. Box 225  
Taylors Falls, MN 55084  
612-465-6315 or 800-447-4958  
Twin Cities (no toll) 462-7550

**\*\*Quest Canoe**  
HWY 35 S  
Osceola, WI 54020 715-483-1692

**\*Marine Landing Boat & Canoe Service**  
P.O. Box 142  
Marine-on-St. Croix, MN 55047  
612-433-2864

Transportation or shuttle service is offered by outfitters indicated; some serve one river or a section of one river only. (\*indicates shuttle for rentals only; \*\*indicates shuttle for rental and non-rental). Some outfitters require advance reservation by mail or phone for shuttle service. The above list is for informational purposes only. The National Park Service does not endorse one outfitter over another.



Continued from page 1 -

## Zebra Mussels

plankton. The removal of plankton from the water could impact the food web; populations of plankton feeding fish may decline as food sources diminish; in turn, predacious fish that feed on the plankton eaters could suffer. Eventually, commercial and sport fishing could be impacted. The long-term effect of zebra mussels on aquatic resources and ecosystems is unknown, but current information leaves little room for optimism.

Infestations of zebra mussels have impacted recreation. Shells of dead zebra mussels littered beaches along the north shore of Lake Erie to a depth of one foot in places in 1989. Swimmers have cut their feet on the shells, and the smell of decaying mussels can be overpowering. Zebra mussels attach to recreation equipment such as docks and buoys; they can attach to ship and boat hulls, increasing drag and reducing fuel efficiency; they clog air and water intakes of boat engines. All of these impacts result in costly clean-ups and repairs.

Economic costs to industrial facilities and municipal water plants are high. The zebra mussel is one of the most potent biofoulers ever introduced to North America with their ability to clog intake pipes of industrial facilities. The Monroe, Michigan, water plant shut down twice and spent an estimated 300,000 dollars per year between 1989 and 1991 to clean up water intakes clogged by this species. Power plants in the Great Lakes area spend an estimated 250,000 dollars annually on zebra mussel control. One source estimated that the United States will spend nearly four billion dollars on zebra mussel control over the next decade.

The impact the zebra mussels could have on the St. Croix River is unknown, but the Great Lakes experience has aroused concern. The St. Croix and Namekagon rivers are a part of the Wild and Scenic Rivers system, set aside for scenic, recreational and biological values of national importance. The St. Croix National Scenic Riverway is administered by the National Park Service. The U.S. Fish and Wildlife Service is especially interested in the St. Croix, because two rare species of mussels live in this river, the winged mapleleaf and the Higgins' eye pearly mussel. Both are federally listed endangered species.

The National Park Service and U.S. Fish and Wildlife Service convened a task force of representatives from other agencies, private organizations, and universities to consider alternatives and develop a plan to reduce the threat of a serious zebra mussel infestation of the St. Croix River system, if not prevent introduction altogether. A plan was drafted consisting of four elements, an information and education program, inspections and access management, watercraft cleaning stations, and active monitoring for the presence of this exotic species. Boating restrictions may be implemented for portions of the river. Whatever the outcome, the stakes are high. Zebra mussels pose a serious threat to the St. Croix River and other inland waters. The ultimate success of any effort will depend on public support and participation.

## Zebra Mussel Biology

The zebra mussel's rapid population growth is due to its unique reproductive tactic. The zebra mussel can produce 30,000 eggs per year of which most do not survive. The mussels continue to produce eggs throughout the season if water temperatures are appropriate, at least 54 degrees Fahrenheit (12 C). The reproductive cycle is also influenced by other factors including phytoplankton abundance, dissolved oxygen levels, and mussel population.

The eggs are fertilized out of the shell and after a few days develop into microscopic free swimming larvae called veligers. The veligers quickly form shells and drift in currents which relocate them to new habitats. This ability to survive in the water column enables them to spread rapidly. To survive, the veligers must attach to a hard surface within 3-4 weeks. The mussel produces thread-like fibers known as byssal threads which secrete an adhesive that anchors them to solid surfaces. The majority of veligers do not settle, but those that do will transform into a double-shelled mussel within a couple of weeks. They can break away from their attachments, generate new byssal threads and drift in the currents to a new surface. The mussels are visible to the naked eye at about three weeks, but are only the

size of a grain of sand.

Most zebra mussels are the size of a thumbnail, but they can reach two inches long when fully grown. They can cluster together in colonies of thousands per square meter. A zebra mussel has a lifespan of 3-5 years, but varies depending on environmental conditions. The veligers and adult mussels can attach to other mussels, rocks, intake pipes, boat hulls, docks or any other firm surface. Since the zebra mussel is so prolific, it can cause great damage to ecosystems, industries and recreational resources.

Research to reduce the spread of zebra mussels is focused upon a number of strategies. 1) Reduce the ability to attach to substrates, such as boats, thereby reducing the opportunity for spread. This involves disrupting the process in which a protein enzyme produces the sticky substance exuded from the byssal threads which is used in attachment. 2) Use of silicon based paints which disrupt the ability to attach. 3) Induce egg release prior to the release of male sperm - thereby preventing fertilization from occurring.

More research will need to be done on the zebra mussel's life cycle in a riverine system because it may be different than that of the Great Lakes.

## Boating Restrictions Implemented on the Lower St. Croix National Scenic Riverway

Boating restrictions have been implemented, effective May 24, 1993 for portions of the Lower St. Croix National Scenic Riverway. They limit access to protected areas through National Park Service regulatory authority. Boats exposed to contaminated waters will not be permitted above the mouth of the Apple River at the Arcola sandbar (north of Stillwater and just south of Marine-on-St. Croix). Contaminated waters include the lower 25 miles of the Minnesota River, the Mississippi River below Minneapolis, and the St. Croix below Kinnickinnic Narrows.

Specifically, the restrictions are:

-Vessels launched into the St. Croix River above Kinnickinnic Narrows may navigate freely to Marine and back.

-Vessels launched at Marine may navigate freely to Kinnickinnic Narrows and return.

-Vessels that travel into waters below Kinnickinnic Bar will be presumed to be contaminated.

A floating ranger station staffed by National Park Service rangers, will be placed at the restricted area near Arcola sandbar.

The interim response plan developed by a multi-agency team will be implemented along with the boating restrictions. The interim response plan includes the following components; Inspections and Access Management, Information and Education, Decontamination Sites, and Monitoring.

Inspections and access management will be implemented by volunteers and park rangers. Boats, trailers, and related equipment will be inspected for signs of contamination. A partnership program will be pursued, asking boaters to sign a form agreeing to help prevent the spread of zebra mussels.

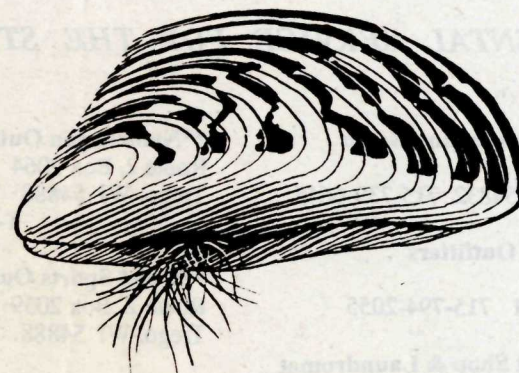
An information and education program has been implemented. Public information strategies include press releases, brochures, mass mailings, newsletters, and public service announcements. St. Croix National Scenic Riverway has initiated the following; staff training for park rangers, this newspaper, purchasing an exotic species exhibit for the Stillwater Visitor Center, development of informational signs for placement at landings, the purchase of zebra mussel videos which are available for viewing at visitor centers, and development of slide programs for park visitors and neighbors.

Funding is not available to set up hot water cleaning stations at this time.

Monitoring the river for zebra mussels will continue.

*Motor powered watercraft transport zebra mussels to uninfected waters.*

*Zebra mussels wiped out many native mussels in Lake Erie.*



Zebra mussel with visible byssal threads.

## Zebra Mussel Identification Key

- Small two-shelled clam, one-half to one inch long (can grow to two inches).
- D-Shaped shell, usually with alternating dark and light colored bands.
- Only freshwater mussel that attaches itself firmly to solid objects, including rocks, boat hulls, etc.
- Byssal threads, fibrous tissue which enables them to attach to objects.



## What You Can Do To Help:

Volunteer with the National Park Service. Volunteers will inspect boats and trailers at landings along the St. Croix River. Volunteers will inform boaters on how to prevent the spread of zebra mussels. Applications for volunteering may be obtained by calling the St. Croix National Scenic Riverway. Ask for Robin Maercklein at (612) 430-1938, or John Daugherty at (715) 483-3284. You can make a difference!



*A mature zebra mussel can produce 30,000 or more eggs in one season.*

*Zebra mussels are the only fresh water mollusk that attach to most solid surfaces.*

## Boater's Checklist

- \* **Inspect** your boat!
- \* **Remove** all aquatic plants and animals from your boat, trailer and accessory equipment (anchors, centerboards, trailer hitch, wheels, rollers, cables and axles) before leaving the boat ramp or marina.
- \* **Drain** your bait bucket on land. Never dump live fish or water into another body of water.
- \* **Wash** your boat, tackle, downriggers, lines and trailer with hot water. Flush hot water at a minimum temperature of 120° F through your motor's cooling system and other boat parts that normally get wet. If possible let everything dry for seven days in the sun, before transporting your boat to another body of water.
- \* **Run** your boat twice per week at high speeds for 10 to 15 minutes to dislodge zebra mussels attached to the hull or in the engine.

## Resources Update

### Herpetofauna Study

In July and August Deahn Donner-Wright and John Probst of the U.S. Forest Service will conduct a study of the reptiles and amphibians found along the Riverway. This study will provide important baseline information - types of species found, locations of populations, and population densities.

Throughout the world, amphibian populations and numbers of species have declined at an alarming rate. Reasons for the decline are not fully understood although acid rain, loss of habitat, and pollution play a part.

Study findings will allow the resource specialists to monitor populations and develop management programs.

### Rare Plant Survey

With a wide variety of habitats along its 252 mile length, the St. Croix National Scenic Riverway has a very

diverse plant community including 58 species listed by the Federal or State governments as endangered, threatened or of special concern.

During 1993 and 1994, Dr. Emmet Judziewicz and Dr. Hugh Iltis of the University of Wisconsin will conduct a survey of the Namekagon and St. Croix river valleys to locate populations of these 58 species.

This knowledge will allow Riverway managers to develop plans to protect these rare plants.

### Archeology

Dr. Caven Clark, a National Park Service archeologist, will conduct surveys and limited excavations along the river this year.

His team of archeologists will check construction sites to make certain that no archeological resources will be disturbed or damaged.

Clark's crew will continue the second year of a five year survey of the lower

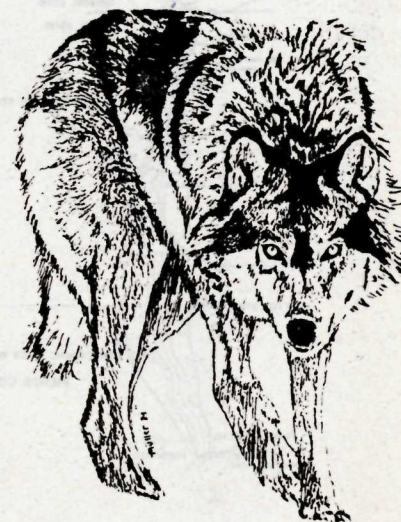
St. Croix. The team will map the location of known sites and will look for unidentified sites. Test excavations may be conducted at some sites. The goal of the study is to increase knowledge of the people who lived within and used the river valley in the past.

### Timber Wolves

Timber wolves have been located near the St. Croix National Scenic Riverway. The Five Corners pack is centered in St. Croix State Park in Minnesota, but wolves from the pack have been sighted on both sides of the river. Other packs are located near the upper St. Croix and upper Namekagon.

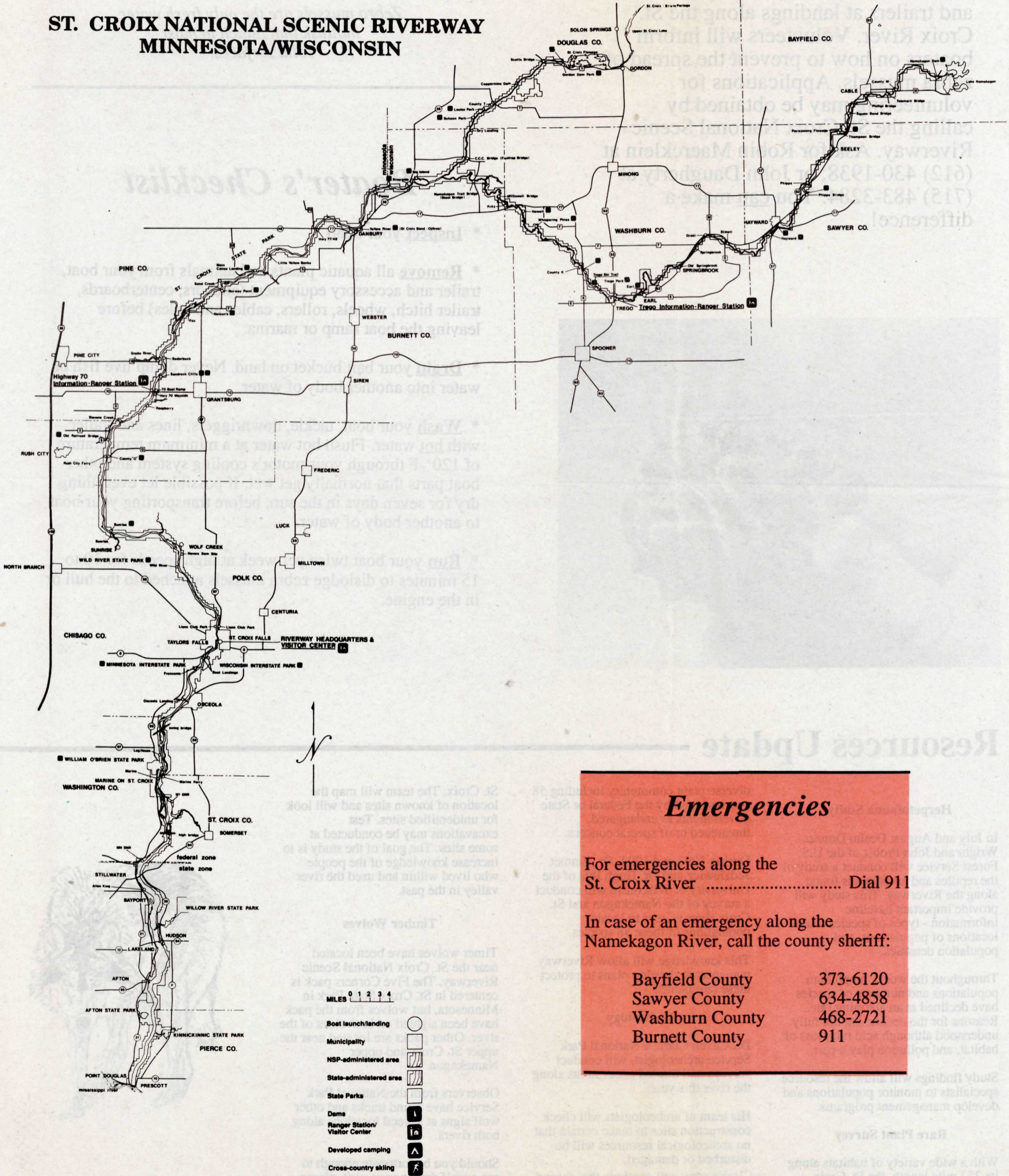
Observers from the National Park Service have found tracks and other wolf signs at several locations along both rivers.

Should you be fortunate enough to see a wolf during your visit, please report it to a ranger.





# ST. CROIX NATIONAL SCENIC RIVERWAY MINNESOTA/WISCONSIN



## Emergencies

For emergencies along the  
St. Croix River ..... Dial 911

In case of an emergency along the  
Namekagon River, call the county sheriff:

Bayfield County	373-6120
Sawyer County	634-4858
Washburn County	468-2721
Burnett County	911