

# RiverCurrents

*The Voice of the St. Joseph River Watershed*

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Friends of the St. Joe River Association, Inc.

## No Dumping: Drains to River!

*Stormdrains Add Pollution, Harm Fisheries*

Stormwater is often laced with sediment, pet waste and other chemicals from cars, trucks and illegal dumping. Many people think stormdrains simply carry harmless rain to the wastewater treatment plant. When in fact, polluted stormwater is rarely treated and usually flows directly into the nearest stream, river, wetland or lake.

### STORMDRAIN RUNOFF HARMFUL TO FISH

The first hour of runoff after a heavy rain can contain seriously harmful levels of petroleum, pathogens and suspended solids. Throughout the St. Joseph River Watershed, most stormwater drains flow directly into streams, rivers and lakes without being treated.

Many people don't realize the household products (such as oils, detergents, paint, solvents and pesticides) they wash or dump into stormdrains end up in their local streams via storm sewers. When leftover hazardous wastes are inadvertently or purposely dumped down stormdrains, the stormwater carries the pollutants directly to our local waterways.

Many household products contain chemicals that are toxic to fish, and many small discharges from hundreds of stormdrains can poison several miles of streams. These chemicals are linked to liver lesions and cancer in fish and are known to spread through the food chain.

### EVEN SEDIMENT CAN BE DEADLY

Following a storm event, sedimentation changes the way water flows, normally slowing the water velocity so that more sediment settles down instead of moving along with the stream flow. What does it mean for the aquatic life?

Since many species of fish spawn in gravel, it is important to keep excess sediment from covering the streambed. Fish deposit eggs in the empty spaces between gravel, and the eggs require fresh, moving water in order to survive, grow and migrate.

When sediment laden stormwater enters the stream several different problems can occur. Murky waters make it hard for fish to see their food. Sediment also damages fish gills and harms insects - further reducing the fish's food supply. Too much sediment fills up streambeds, making them shallow and wider, thus enhancing flood problems.

### MAKE YOUR "MARK"!

According to the U.S. Environmental Protection Agency (USEPA), stormwater runoff is the most common source of water pollution. Marking storm drains provides a way to heighten public awareness about the relationship between water quality and storm drainage systems. Storm drain marking programs are a good way to raise awareness about the threats of polluted runoff and discourage people from dumping waste and chemicals down stormdrains.

## About us

The Friends of the St. Joe River Association, Inc. (FotSJR) was established in April of 1994, and operates as a 501(c)(3) not-for-profit organization.

### Mission

To unite a diverse group of stakeholders throughout the watershed in a collaborative effort to protect, restore and foster stewardship of the St. Joseph River Watershed.

### Become a Friend

Join a group of stewards restoring and protecting this natural resource. We offer a variety of tax-deductible membership levels for both Personal and Business contributors.

### Meetings

Monthly meetings of the Board of Directors and Watershed Council are usually held on the fourth Thursday of the month at the Three Rivers (Michigan) Public Library at 1:00 p.m. EDT. These meetings are open to the public. For more information and to verify dates and times, visit [www.fotsjr.org](http://www.fotsjr.org).

## Is Our Water Protected?

Over the past decade, interpretations of Supreme Court rulings removed some critical waters from Federal protection, and caused confusion about which waters and wetlands are considered "waters of the United States", which are protected under the Clean Water Act. As a result, important waters now lack clear protection under the law, and businesses and regulators face uncertainty and delay.



*Should this water be regulated?*

U.S. EPA and the U.S. Army Corps of Engineers have developed draft guidance for determining whether a waterway, water body, or wetland is protected by the Clean Water Act. Their guidance protects small streams that feed into larger streams, rivers, bays and coastal waters. It also reaffirms protection for wetlands that filter pollution and protect communities from flooding. Discharging pollution (e.g. sewage, contaminants, or industrial waste) into protected waters or filling protected waters and wetlands (e.g., building a housing development or a parking lot) requires permits. This new definition for "waters of the United States" should better protect streams and wetlands that affect the quality of the water used for drinking, swimming, fishing, farming, manufacturing and other activities essential to the American economy and quality of life.

For more information visit [http://water.epa.gov/lawsregs/guidance/wetlands/CWAwaters\\_guidesum.cfm](http://water.epa.gov/lawsregs/guidance/wetlands/CWAwaters_guidesum.cfm).

## "Put A LID On It"

### Reducing Urban Runoff In the St. Joseph River Watershed



**Like many rivers and streams in the St. Joseph River Watershed, the Fawn River receives stormwater discharges from urban areas like Sturgis, Michigan. As with most stormwater discharges, this means not only rainwater, but also the road dirt, fertilizers, salt and other pollutants collected as the rainwater moves across the land to the storm sewer system. The City of Sturgis needed to replace an aging public services building and provide greater access to Memorial Park.**

The City used these infrastructure projects to demonstrate new Low Impact Development (LID) technologies that reduce polluted runoff, decrease flooding and improve water quality in the Fawn River. The City funded part of this LID demonstration project with a grant from the Michigan Department of Environmental Quality Nonpoint Source Program. The grant included funds for several different LID techniques described below:

#### **POROUS ASPHALT AND CONCRETE**

New mixes of both concrete and asphalt for roads, sidewalks, and parking lots allow stormwater to pass through to the ground instead of running off into a storm sewer. The mixes have space between the paving materials that allow water to permeate through the surface, and down into the ground to filter and infiltrate. The City's use of porous asphalt and concrete provides needed access to Memorial Park and produces less polluted runoff than traditional asphalt/concrete applications.

#### **RAIN GARDENS**

These shallow depressions are filled with compost and topsoil mixtures and then planted with deep-rooted vegetation. These gardens collect rainwater and allow it to filter down to the water table, removing pollutants through a natural process. Memorial Park features a large rain garden as the focal point of both the stormwater infiltration

system and the park's aesthetics. Signage helps inform park visitors about how a rain garden reduces polluted runoff, why it is important to reduce runoff and how they can build one at home.

#### **GREEN ROOF**

"Green" or vegetated roofs have a variety of benefits. Depending upon the application, they can help absorb rainfall, reduce runoff and heating costs, and extend the life of a roof. Sturgis' public services building features a green roof over a portion of the facility. The vegetative covering helps limit runoff from the facility's roof.

#### **STORMWATER REUSE**

In addition to improving the natural infiltration of stormwater, reusing it for other purposes is a great way to limit the impact of stormwater. For most residences, this can come in the form of a rain barrel to collect water, which can be used, for example, to irrigate a garden. The big brother of a rain barrel is a full reuse cistern. Placed underground, such a system can store many times more water and is ideal for large facilities. At the Sturgis public services building, a reuse cistern has been installed which collects rainwater directly from the roof's downspouts. The rainwater collected is used to irrigate portions of the site's landscaping.

#### **LEADING BY EXAMPLE**

The public services building and Memorial Park LID demonstration projects has resulted in less stormwater runoff to the Fawn River and greater groundwater recharge. The key to this project, however, is the word demonstration. The true, long-lasting impact is in providing examples of new ways to tackle problems and showing these new techniques to developers, contractors and citizens. For more information, contact Andrew Kuk, City of Sturgis at [AKuk@sturgismi.gov](mailto:AKuk@sturgismi.gov), or Claire Schwartz, P.E., Senior Civil Engineer, Fishbeck, Thompson, Carr & Huber, Inc., at [ceschwartz@ftch.com](mailto:ceschwartz@ftch.com).

## Taking the Bait!

### Understanding the Risks of Aquatic Invasive Species

**Aquatic invasive species are animals and plants that have been introduced into waterways in which they had not been historically present. They have harmful effects on the ecosystems they are introduced to and often impact human uses of these natural resources. Whether plant or animal, invasive species are everywhere. Their introduction is often accidental or perceived as non-threatening and their tenacity in taking over their new environment is never expected.**

#### COUNTING THE COST

Invasive species cost the economy of the United States an estimated \$137 billion annually in lost production and control costs (Pimentel et al., 2000). In the absence of native predators and diseases, these organisms often develop very large populations that create severe ecological and economic problems. When such invasions occur in our lakes and rivers they can disrupt the whole aquatic ecosystem and impair important municipal, industrial, agricultural and recreational uses of our waterways.

Within the St. Joseph River Watershed (SJRW), we are plagued by the presence of invasive species, and overwhelmed in our attempts to control them. It is estimated that millions of dollars are spent on controlling these aquatic invaders. They compete with native species, they clog our waterways and destroy valuable fish habitat impacting local fisheries. They have taken over lakes and established wetlands.

Additionally, aquatic invasive species have caused significant changes to ecosystems, such as alterations of food webs, nutrient dynamics, reproduction, sustainability,

and biodiversity. They out-compete and even displace native populations. **Some common offenders in the SJRW include:**

- **Common carp:** bottom feeding habits (rooting) destroy spawning beds of desirable native species.
- **Eurasian milfoil:** aggressive aquatic plant that drastically alters a water body's ecology by forming very dense mats of vegetation on the surface of the water.
- **Purple loosestrife:** hardy perennial that forms dense, impenetrable stands unsuitable as cover, food or nesting sites for a wide range of native wetland animals.
- **Zebra mussel:** prolific reproducer that overcrowds native bottom dwelling organisms.

#### STOPPING THE SPREAD

- When pulling your boat out of the water, check the boat, motor and trailer for weeds and other things "tagging along". Wash your boat's hull with hot water or with a high-pressure spray.
- Drain livewells, bilges and other compartments, and drain all standing water from your boat before leaving the boat launch area.
- Dispose of bait properly, especially live bait. Even if you think your bait is native, it has the potential to include nuisance species and or contain a disease that can have negative impacts on your fishery. Using bait as lawn/garden fertilizer is better than throwing it back in the water.

For more information visit the U.S. Department of Agriculture's website on invasive species at [www.invasivespeciesinfo.gov/aquatics/faq.shtml#qm](http://www.invasivespeciesinfo.gov/aquatics/faq.shtml#qm).

## Workshop Looks At Barriers to Fish Migration

The Friends of the St. Joe River helped the Potawatomi RC&D gather local information about fish migration barriers and hosted a workshop on October 14, 2011. An inventory of large barriers (i.e. dams) was completed for the entire watershed and the results of the prioritization process were shared at the workshop. The final report is meant to provide guidance and justification for the funding of barrier removal projects and passage studies by local partners.



Dams and road/stream crossings can have negative effects on local stream ecology and hydraulics, and road/stream crossings often fail due to design and installation problems. Attendees of the workshop learned ways to properly assess, design and install culverts at road/stream crossings. The workshop attendees enjoyed an afternoon field trip where they explored and discussed the impacts of a dam and the design considerations of road/stream crossings.



The final report and workshop presentations are available at <http://www.fotsjr.org/outreach/WorkshopMaterials>.

## Creature Feature

### Common Carp (*Cyprinus carpio*)\*

Common carp (*Cyprinus carpio*) are domesticated ancestors of a wild form native to the Caspian Sea region and east Asia. Although this species was originally introduced in the U.S. as a food source, it has yet to be widely accepted for this purpose. The bottom feeding habits (rooting) of this fish prove to be quite destructive. When overabundant, carp cause an increase in water turbidity (cloudiness of water) and a decrease in aquatic plants and invertebrates. Evidence has also proven that the common carp prey on the eggs of other fishes and their foraging activities can destroy spawning beds of more desirable species. Therefore, common carp are responsible for the decline of some native fish species. (Source: Indiana Department of Natural Resources)



\*The common carp is not the same species as the Asian Carp feared to be in the Great Lakes.

**Conservation Status:** Introduced Invasive Species

## FlowFacts

The way a river responds to rainfall and snowmelt is an important indicator of watershed health. A stream rising slowly after a storm generally has a healthier watershed than one rising quickly. The USGS continuously monitors streamflow (or discharge) in the St. Joseph River Basin at 12 separate gauging stations. Real-time streamflow data from each gauging station is available through the USGS web site below.

### FlowFacts from the Paw Paw River USGS gauging station at Riverside, Michigan.

#### Period of Record October 1951 to present:

- Drainage Area: 390 square miles (12% of SJRW)
- 2010 Peak Flow: 1,520 cfs\* (October 31)
- Maximum Flow on Record: 3,870 cfs (September 17, 2008)

\*cfs = cubic feet per second

#### FlowFactoid

3,870 cfs would fill Notre Dame Stadium in about 1 hour and 28 minutes!

Visit <http://waterwatch.usgs.gov> to find a gauging station nearest you and watch the flow of the Joe!

## FotSJR Founders Honored At Dedication Ceremony

On May 26, 2011, several family and friends were on hand for the dedication ceremony to honor the Friends of the St. Joe River (FotSJR) founding members, Al and Margaret Smith. The public dedication ceremony took place in Three Rivers, Michigan on the east bank of the St. Joseph River in Conservation Park. Through the generosity of several private donors, the Barton Farm Company and the City of Three Rivers, a large granite rock and bronze plaque was unveiled by FotSJR Board President, Matt Meersman, as a permanent fixture and "token of appreciation" for the Smith's. The plaque reads:

*"In honor of Al & Margaret Smith, founders of the Friends of the St. Joe River Association. Their dedication to improving the river inspires us to care for all the waters of the St. Joseph River."*

Many of the FotSJR Board and Watershed Council members spoke warmly about not only the FotSJR organization, but also what Al and Margaret meant to them personally and how their life was shaped by the Smith's love and passion for conservation. FotSJR Board Member, Jim Coury, wrote an especially moving tribute to the Smith's, including this excerpt:

*"When we set a commemorative stone in place, it is a mark of permanence, respect, love and appreciation for a life well lived and service to others. It is also a bridge so that future generations know that fine people were here before them, leaving gifts that have improved their lives and insured a better future. A large stone put in a beautiful place serves as a place for people to rest and reflect and perhaps come up with solutions to problems, or to find peace in their lives. It is a place for children to cling, laugh and squeal with delight. This is a wonderful tribute to the lives of Al and Margaret Smith, and all that they have given."*

Al passed away on April 5, 2011 at the age of 86. His wife Margaret survives and was able to attend the dedication ceremony.



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## Support the Friends

The Friends of the St. Joe River are working with individuals and partner organizations to implement important restoration and protection projects throughout the watershed.

Pledge your support for our efforts by making a tax-deductible donation. Your support and generosity will help us improve and protect the quality of the water and other natural resources we depend on. Visit [www.fotsjr.org](http://www.fotsjr.org) for more information.