

RiverCurrents

The Voice of the St. Joseph River Watershed

Spring 2011

A Quarterly Publication of the
Friends of the St. Joe River Association, Inc.

Water, Water Everywhere!

Understanding the Basic Causes of Flooding

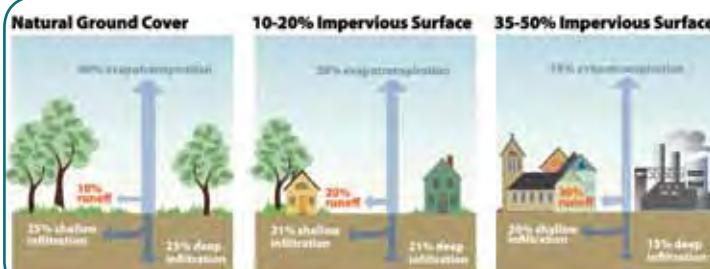
Floods have been occurring throughout Earth's history, but the frequency and severity are increasing. To understand why, we need to consider how water makes its way to rivers and streams now in contrast to how it did before the 19th century.

Prior to European settlement, deep rooted plants covered nearly all of the land in the Midwest. There was very little exposed soil and the native vegetation allowed rain and snow to be absorbed and recharge the groundwater supply.

Historically, rivers, lakes and streams were places where groundwater made its way to the surface. Flow in these water bodies was moderated by a steady supply of groundwater. Flooding as we know it only occurred during a heavy rainfall event or a large snowmelt when the ground was saturated or frozen. It was during these times that water would move across the Earth's surface rather than penetrating it. This surface runoff would combine with the groundwater base flow causing rivers and streams to rise above their banks. The resulting floods were seasonal and played a large role in the natural reshaping of river channels.

Food crops, lawns, buildings and pavement have replaced most of the native vegetation that covered the Midwest. This change in land cover has completely altered the way water gets to rivers and streams. The shallow roots of agricultural crops and turf grass do not allow much water to infiltrate the Earth's surface; buildings and pavement allow even less. A large portion of rain and snowmelt now enters rivers and streams as surface runoff. As the percentage of stream flow supplied by surface runoff increases high flows get higher and low flows get lower.

The shift from groundwater to surface runoff as the primary source of flow in rivers and streams has lead to flooding at almost any time of year and extremely low flows during even short periods without rain. There are economic and environmental impacts from these irregular flow patterns. The property damage occurring during a flood is obvious, but the cost of low flows is also significant as more and more rivers and streams are used for irrigation and recreation. Constantly changing water levels can damage the vegetation on stream banks causing increased erosion. Surface runoff also carries pollutants that are not normally found in groundwater.



This image demonstrates how increased development prevents water from being absorbed back into the ground. As impervious surfaces (such as buildings and pavement) increase the ground is able to absorb less water and more water runs off. This can cause flooding as the water does not have natural areas to infiltrate into. For more information visit <http://100yearfloods.org/flooding101/#landuseflood>.

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.

In Memory

Al Smith, FotSJR Founder
March 28, 1925 - April 5, 2011

Wetland Protection through Floodplain Management

Protecting floodplains from development is an urgent public health and safety matter within the St. Joseph River Watershed. Floodplains are the natural low areas adjacent to streams and rivers that hold floodwaters. It is estimated that 80 percent of the nation's wetlands are found within the 100 year floodplain. The 100 year floodplain is the area with a one percent chance of flooding in any given year. Since it is common to find extensive wetlands in the floodplains of rivers, lakes and streams, floodplain management generally involves wetland protection.

When floodplains are altered by development, filling, sedimentation and/or vegetation destruction, their ability to handle floodwaters are greatly reduced, increasing flooding and causing additional flood damages, especially downstream. Communities throughout the St. Joseph River Watershed can adopt specific regulations to control development in floodplains.

Local floodplain regulations should promote the following goals:

- Limit the alteration of natural floodplains, streams and wetlands that store flood waters.
- Control activities like filling, grading and dredging.
- Prevent encroachment on stream channels and wetlands.
- Prevent construction of flood barriers that will unnaturally divert flood waters or may increase flood hazards in other areas.
- Slow runoff volume and rate to reduce flooding, sedimentation and property damage.
- Promote federal, state and local government cooperation through consistent application of regulations (so one unit of government does not transport flooding problems to another because of poor floodplain management).

For more information on Floodplain Management in Michigan, visit <http://www.michigan.gov/floodplainmanagement>. In Indiana, visit <http://www.in.gov/dnr/water/5084.htm>.



The Role of Wetlands in a Floodplain Natural Flood Protection

Months of heavy snow and rainfall throughout the St. Joseph River Watershed have caused wide-spread flooding, leaving the St. Joseph River and many of its tributaries overflowing their banks. According to the U.S. Geological Survey, during the 20th century, floods were the number-one natural disaster in the United States in terms of the number of lives lost and property damage. They can occur at any time of the year, in any part of the country and at any time of the day or night.

But could the flooding have been partially avoided? According to the U.S. Department of the Interior, the simple answer is yes. Not through the manmade structure of levees, but through the protection and restoration of wetlands.

The Role of Wetlands in a Floodplain

Wetlands play a critical role within our floodplains. They function as natural sponges that trap and slowly release surface water, rain, snowmelt, groundwater and flood waters. Trees, shrubs, root mats and other ground-level wetland vegetation slow the speed of flood waters, distributing them more slowly over the floodplain. This combined water storage and braking action lowers flood heights and reduces erosion. Wetlands within and downstream of urban areas are particularly valuable, counteracting the greatly increased rate and volume of surface-water runoff from pavement and buildings.

According to Peg Bostwick, former Chief of the Wetlands, Lakes & Streams Unit of the Michigan Department of Environmental Quality, "The Michigan legislature specifically recognizes the important role that wetlands play in the management of floodwaters in the State's wetland regulations, listing 'flood and storm control by hydrologic absorption and storage capacity' among the public benefits of wetlands."

Natural Flood Protection

The holding capacity of wetlands helps control floods and prevents water logging of crops. Preserving and restoring wetlands, together with improved stormwater management practices in urban areas, can often provide

better flood control than expensive dredging operations and levees. For example, the bottomland, hardwood riparian wetlands along the Mississippi River once stored at least 60 days of floodwater. Now they store only 12 days because most have been filled or drained. (Source: USEPA)

Wetland Restoration

If wetlands reduce flooding and offer other benefits to wildlife and water quality, why restore wetlands to create a more cost-effective, natural flood-control strategy? Restoring wetlands by breaking drain tiles or plugging ditches can offer a degree of protection against flooding that is often more effective and costs less than a system of traditional dikes and levees. If more communities protect existing wetlands and increase the quantity of wetlands through restoration projects, we will be better protected against the consequences of floods.

"Some of the most flood prone areas [of Michigan] are also those that have experienced a high percentage of wetland loss or conversion to agricultural or urban land use since European settlement," Bostwick said. Wetland restoration can work if hydrology, soils and vegetation can be re-established. We should expend time and resources restoring damaged wetlands, or creating new wetlands to replace those destroyed by development.

Assessing Wetlands for Flood Protection in the St. Joseph River Watershed

Wetland restoration and preservation is an important component of a comprehensive flood protection strategy. To that end, the FotSJR, along with a diverse group of partners, are currently working on a Landscape Level Wetland Functional Assessment (LLWFA) for the entire St. Joseph River Watershed. The LLWFA will evaluate every existing and historical wetland in the watershed for several water quality and habitat related functions including surface water detention (floodwater storage). The LLWFA is part of the three-year Wetland Partnership Project funded through the USEPA. For more information visit <http://www.fotsjr.org/WetlandPartnership>.

"Take a Load Off!" Steps to Reduce Runoff from Agricultural & Urban Lands

Some soil in streams and rivers is natural, but in excessive amounts sediment becomes a pollutant. Sediment is actually the primary pollutant of concern in the St. Joseph River Watershed. For example, dredging sediment from the St. Joseph Harbor costs approximately \$600,000 per year. Seventy percent of the land draining to the St. Joseph River is used for farming, and agricultural fields can be large contributors of sediment.

The good news is sediment loading can be reduced through several "best management" practices. There are specific strategies designed to reduce polluted runoff from agricultural and urban lands:

Agricultural "Best Management" Practices

There are many types of cultivation practices that reduce runoff, such as growing winter cover crops and using crop

residues to protect bare surfaces. Installing grassed waterways or other erosion control measures in places where runoff collects in fields can protect streams and crops. Creating areas of native vegetation between crops and waterways can stabilize streambanks, provide habitat for wildlife, shade the stream channel, and filter sediment and chemicals from runoff.

These and other agricultural "best management" practices



can significantly reduce erosion and prevent pollution from chemicals that might be attached to soil particles.

Urban Stormwater "Best Management" Practices

Stormwater runoff from urban areas carries sediment, nutrients, oils, heavy metals and other pollutants. Runoff from urban areas can be reduced by adopting practices that increase infiltration, such as rain gardens or vegetated swales. Green roofs and rain barrels prevent runoff by utilizing rainwater for plant growth. Permeable asphalt and concrete can be used for driveways, parking lots and sidewalks to reduce runoff and increase groundwater infiltration. These and other urban stormwater "best management" practices can be adapted to existing urban areas and used in new developments.



Learn More!

Our next newsletter will highlight examples of these practices being implemented in the St. Joseph River Watershed. The Friends of the St. Joe River and the Watershed Council are composed of representatives of both rural and urban communities. Participate in our monthly meetings to share information, ideas and resources with other community members. Visit http://www.fotsjr.org/upcoming_events for more information.

Creature Feature

Bald Eagle (*Haliaeetus leucocephalus*)

The Bald Eagle is a bird of prey found in increasing populations within the St. Joseph River Watershed and abroad. Bald Eagles are not actually bald, the name deriving from the older meaning of the word, "white headed". They are found near large bodies of open water with an abundant food supply and old-growth trees for nesting. The same nests are used every year with moss and twigs added when necessary. Nests are known to be quite large, some weighing almost 4,000 pounds. Averaging between 27 to 35 inches tall with a 71 to 90-inch wingspan, eagles fly between 20 - 60 miles per hour. When diving for prey, they can obtain speeds up to 100 miles per hour.

Conservation Status: While removed from U.S. Federal protection in 2007 as an Endangered & Threatened Species, local protection and conservation efforts should be observed.



Photo Courtesy Photostock.com

4th Annual SJR Watershed Council Meeting Explores "Pirating" & the St. Joseph River

The FotSJR hosted the 4th Annual Meeting of the St. Joseph River Watershed Council on Monday, March 14, 2011 at the Sturges-Young Auditorium in Sturgis, Michigan. Over 75 attendees heard guest speaker Dr. Kevin Kincare, from the U.S. Geological Survey (USGS), speak about the geologic history of the St. Joseph River. His presentation, entitled "From the Mississippi to Lake Michigan – Pirating and the St. Joseph River," provided fascinating information about how the St. Joseph River was stolen from the Mississippi River to become the third largest tributary of Lake Michigan. Prior to working for the USGS in Virginia, Dr. Kincare worked for the Michigan Geologic Survey, focusing his work on the St. Joseph River Basin. He is currently mapping the glacial geology of the St. Joseph and Manistee River basins.

A new feature of this year's annual meeting was a silent auction, which raised nearly \$600 to help fund future programs in the watershed. The FotSJR recognizes the following silent auction item donors for their generosity: JFNew Native Plant Nursery, LaGrange County SWCD, Michiana Stormwater Partnership, Nottawaseipi Huron Band of Potawatomi Indians, Lori G Photography, Rachel Mae Photography, Dave Arrington, Keith Cooper, Jim Coury, Corey Shank, Rebecca Shank and others.

The FotSJR Board would also like to thank this year's annual meeting sponsors: American Electric Power, Pheasants Forever (Chapter 592) and the Southwest Michigan Land Conservancy. Their generous support was greatly appreciated and contributed to the success of the annual meeting.

FotSJR Welcomes New & Renewing Board Members

Prior to the 4th Annual SJR Watershed Council Meeting, the FotSJR Board held their annual business meeting. Of significant importance was the election of Ray Leising, Brian Musser and Maria Schaefer to the FotSJR Board roster. Additionally, the following Directors were elected to serve through 2014: Eldred Adams, Geoff Cripe and Daragh Deegan. For more information on the FotSJR Board of Directors, visit <http://www.fotsjr.org/BoardOfDirectors>.

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 Elkhart River USGS gauging station at Goshen, Indiana.

Period of Record April 1931 to present:

- Drainage Area: 594 square miles (8% of SJRW)
- 2009 Peak Flow: 6,220 cfs* (May 23)
- Maximum Flow on Record: 6,360 cfs (February 24, 1985)

*cfs = cubic feet per second

FlowFactoid

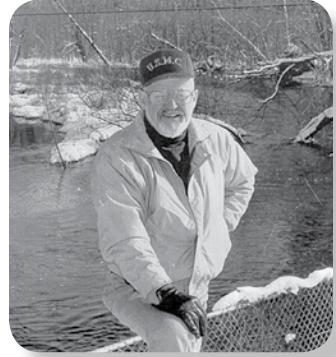
6,360 cfs would fill Notre Dame Stadium in about 54 minutes!

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

FotSJR Mourn Loss, Celebrate Life of Al Smith

Al Smith, founder of the Friends of the St. Joe River, died peacefully surrounded by his family on April 5, 2011 at the age of 86. Al was born March 28, 1925 in Marcy, New York to Dr. T.C. and Dulcie (Grantham) Smith. He was a WWII veteran of the Marine Corp serving in the South Pacific as a Staff Sergeant for the VMF 222, a Corsair squadron. On June 15, 1947, he married Margaret (Doubleday), and together they devoted their time to family, friends and the community.

When he retired in 1982, Al had visions of relaxing, playing golf and doing a little fishing along the St. Joseph River. His retirement plans changed when he saw the condition of his favorite river. It appeared sick and weary. Garbage filled the riverbanks, and people dumped everything from overstuffed furniture to old appliances into it. Having spent much of his youth in and around the river, Smith thought someone should do something about it. "We only get out of this world what we put into it," said Smith. "We had better take care of what we have."



In 1994, Al, along with his wife Margaret, formed the Friends of the St. Joe River as a 501(c)(3) nonprofit organization. The organization gained presence within the watershed community by recognizing the need to address broad-scale issues in a collaborative, strategic manner. To honor both Al and Margaret's tireless work for the restoration and protection of their beloved St. Joseph River Watershed, the FotSJR Board placed a permanent memorial fixture by the St. Joseph River at Conservation Park in Three Rivers, Michigan. For more information, please contact fotsjr.outreach@gmail.com.

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www.fotsjr.org



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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 for more information.