

# What are the eight biggest problems facing the Chicago River today?

## 1. Loss of biodiversity and high-quality habitat

Like many ecosystems, the Chicago River watershed was once home to a wide variety of organisms. Some of these organisms are no longer found in this area at all, while other populations have been greatly reduced. For example, black bears once frolicked near the river while a wide variety of orchids inhabited the prairies and woodlands. This is no longer the case. The reduction in biodiversity is due mostly to habitat loss and the breaking up of large tracts of wilderness into smaller parcels of land (fragmentation). Habitat loss and fragmentation are a result of human population growth, agriculture and urbanization. Additional reasons for loss of biodiversity include invasive species (species, usually from another country, that invade ecosystems and displace native species) and over-harvesting of species by humans.



### **What you can do:**

**Volunteer with organizations that preserve and restore natural areas, including the removal of invasive species and re-planting of native species.**

## 2. Toxins in the river water and sediments

The Chicago River suffered much industrial dumping prior to the Clean Water Act of 1972. Though this law greatly reduced the amounts of point-source pollution (pollution that comes from a specific physical source, such as a pipe), many toxins including heavy metals and PCBs persist in river sediments even today.



Toxins continue to enter the river through non-point source pollution. This pollution does not come from a specific source but from all over the watershed (such as the washing of chemical fertilizers, pesticides, oil, etc. into the river). Many toxins can bioaccumulate (build up in the tissues of organisms) and biomagnificate in the food chain (organisms higher on the food chain get larger doses of toxins from eating many organisms containing smaller doses).

### **What you can do:**

**Support sediment clean-up efforts and bans on the consumption of river fish.  
Reduce non-point source pollution.**

## 3. Excess nutrients in the river

Excess nitrogen and phosphorous can negatively impact a waterbody. When these nutrients are present in excess, they fuel a population explosion of algae. The algae block light from entering the water, causing other aquatic plants to die. As the large numbers of algae die, they sink to the bottom and join the dead plants. There is a large amount of dead organic material now; so decomposing bacteria begin to consume it at



a rapid rate. During the decomposition process, the bacteria use up a great amount of oxygen through cellular respiration and release carbon dioxide and other gases. This depletes the water's oxygen. Fish and other aquatic animals begin to die which provides more material for the bacteria to decompose. At the extreme, the waterbody can essentially become devoid of oxygen and thus devoid of life. Eutrophication is the term used to describe the general process of nutrient addition to an ecosystem. Over long periods of time waterbodies naturally tend to become eutrophic through the movement of sediment and organic material. This natural eutrophication does not cause the rapid collapse of an ecosystem. However, cultural eutrophication refers to a waterbody rapidly becoming eutrophic due to nutrient additions from human actions. For example, chemical fertilizers from farms, lawns and golf courses and livestock and pet waste can either be washed into or dumped into waterbodies, thus causing cultural eutrophication.

**What you can do:**

**Limit your use of chemical fertilizers and support the proper disposal of livestock and pet wastes.**

**4. Excess fecal coliform bacteria**

Fecal coliform bacteria are an indicator species that alerts us to the presence of fecal matter in the water. These bacteria are not pathogenic, but they nearly guarantee the presence of pathogenic bacteria that are found in feces. Fecal coliform in the water may be natural, coming from the feces of animals that inhabit the river, or it can be due to the presence of untreated raw sewage or treated sewage which is not disinfected. The Metropolitan Water Reclamation District of Greater Chicago (serving Chicago and some of the near-northern suburbs) does not treat its wastewater before releasing into the river.



South of Dempster, Chicago has "combined sewers." All the water going down the drains in homes, buildings, factories combines with the rainwater flowing down storm drains in the street and ends up in the same pipe underground. These combined sewer pipes carry the water to a wastewater treatment plant so that it can be cleaned before it is returned to the river. When it rains heavily in the Chicago area, huge quantities of water pour into the combined sewer pipes. Because there are few areas for water to soak into the ground, most of it ends up going down the street drains. When the combined sewer pipes and wastewater treatment plants are overwhelmed, the excess water is shunted to huge tunnels and reservoirs underground. These tunnels are known as the "Deep Tunnel" or TARP (Tunnel and Reservoir Project). However, if these tunnels and reservoirs fill up, the untreated water is released directly into the Chicago River without any cleaning. This event is known as a combined sewer overflow. With all this water reaching the river, there is sometimes the fear that the river will flood. So, the locks to the lake are opened and the river water spills into the lake, carrying with it all the untreated wastewater. This is often one of the main reasons that beaches are closed on Lake Michigan.

**What you can do:**

**Volunteer to restore natural areas, install a rain barrels and create rooftop gardens/raingardens. Reduce water usage in your home, especially during storm events can also help.**

## 5. Excess soil erosion

The banks around the Chicago River are severely eroded in many places. Wooded sections of the river have trees that are nearly falling into the water and there is little habitat along the banks. In addition, when sediment is eroded it washes into the river, reducing visibility for aquatic organisms, clogging the gills of aquatic organisms and burying bottom dwelling aquatic organisms. Erosion is a direct result of increased run-off. Rainwater falling on our watershed can either run-off over the land, reaching the river quickly, or soak into the soil and move through the soil, reaching the river slowly. Water moving over the land can erode the land over which it flows. As the land in a watershed becomes developed – converting forests, prairies, and wetlands into roads, homes, offices, shopping malls and parking lots – less and less water is able to infiltrate into the ground. Consequently, more water runs off over the land. In natural areas, 10% of the rainfall runs off the land compared to 55% in urban areas. 50% of the rainwater soaks into the ground in natural areas, compared to 15% in urban areas. The remaining water is evapotranspired – transpired by plants, or evaporated from surfaces.



With more rainwater quickly running off the land, huge quantities of water reach the river very quickly. For instance a large rain storm on October 13, 2001, caused the Chicago River at Touhy Avenue to rise from 3.5 ft (already 2 ft. above average) to just over 9 ft in the matter of hours. This large volume of water has the power to greatly erode the banks of the river.

### **What you can do:**

**Reduce run-off rates by employing rainbarrels or disconnecting your downspouts (when possible). Volunteer with organizations that plant native vegetation to stabilize riverbanks.**

## 6. Presence of dams

Dams are a large environmental problem worldwide. On a large scale, dams can cause flooding upstream on rivers and the reduction of water levels downstream. In the Chicago River there are several dams. Though they typically do not cause flooding and drying-up events, they block the migration of fish along the river. This is very detrimental to the restoration of biodiversity on the river, especially when fish may otherwise be able to return due to improving water conditions.



### **What you can do:**

**Support programs that remove dams, where possible, or install fish ladders and weirs to allow fish to migrate around dams.**

## 7. Lack of public access

There are many places on the Chicago River that are inaccessible to people because of fencing, walls or thick growth of non-native shrubs. In order for people to feel connected to the river and to be concerned about it, they must be able to have contact with it. People need to see the beavers and herons in the river or to take a



canoe trip past the wonderful architecture in Chicago to really appreciate the river as a natural and cultural resource. Also, often people can't get to parts of the river to clean it up if they want to, as they can't reach it.

**What you can do:**

**Support the on-going development of a continuous river walk, encourage city officials to improve river access and organize community tours of the river.**

**8. Lack of public awareness and action.**

The Chicago River has endured much negative publicity during its history. There are plenty of people who still remember its stinky black water and the abundance of trash floating down the river. Many people do not realize the tremendous improvement in the river's cleanliness, the restoration of its banks and the return of a wide variety of organisms to its waters. Though things have improved, the river still needs a great deal of help. People cannot offer to help if they don't know what to do or how to take action.



**What you can do:**

**Teach others about the "new face" of the Chicago River, encourage others to become involved in river and watershed restoration, help people understand what common daily actions harm the river, write to state and local representatives to increase funding of river clean-up efforts, and enjoy the river on your own.**

**References**

Hill, Libby. The Chicago River: A Natural and Unnatural History. 2000, Lake Claremont Press, Chicago, IL.

Sullivan, Jerry. An Atlas of Biodiversity. Chicago Region Biodiversity Council  
Swink, Floyd. Gerald Wilhelm. Plants of the Chicago Region. 1994, Indiana Academy of Sciences.

Wright, Richard T. Bernard J. Nebel. Environmental Science: Toward a Sustainable Future 8<sup>th</sup> Edition. 2002, Prentice Hall, USA.

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