

# The Wetlands of Green Bay's West Shore

## Jewels in the Lake Michigan Basin



### Coastal wetlands and their watershed

Green Bay's west shore wetlands are affected by Great Lakes water levels as well as the streams that flow into Green Bay from all across the larger watershed shown on the map above. How we care for the lands in the watershed affects the health of the wetlands. Runoff from urban and agricultural lands carries soil, nutrients and other pollutants into the wetlands. Also, as land is developed, more polluted water runs off the land and less clean water from rain and melting snow soaks into the ground to naturally recharge the wetlands.

Many of the small stream and ditches that connect the coastal wetlands with upland areas are ephemeral, meaning that they only hold water for a few months, usually in the spring. These areas are not technically "wetlands," nor are they considered "navigable." As a result, they are not protected by state and federal laws and are increasingly subject to development. Studies indicate that commercial and residential development has already damaged or destroyed 70% of the original west shore wetlands.

**1 Green Bay's "west shore"** coastal area stretches from the Fox River in Green Bay to the Menominee River in Marinette (see map). The lands adjacent the west shore are wetlands, which weave together land and water in an ecosystem found nowhere else in Wisconsin. Variations in Great Lakes water levels affect the wetlands and help create a very dynamic ecosystem.

Thousands of wildlife species, including numerous endangered and threatened birds, reptiles, and amphibians depend on the coastal wetlands. However, these coastal wetlands are themselves threatened by urban and rural runoff and development in the larger watershed, of which the wetlands are only one part.

The life cycle of the Northern pike provides a snapshot of the relationship between coastal wetlands, a healthy watershed, and ecologically and economically important species.

**2 Northern pike** are the second largest game fish in Wisconsin (after the muskellunge, or "muskie") and can grow to more than four feet in length. Pike are an important part of Wisconsin's sport fishing economy. The economic value of each northern pike is estimated at \$143, considering the money spent on fishing equipment, motel rooms, food, gas and other supplies for a fishing trip.

Northern pike depend not only on the coastal wetlands, but on a network of small streams and ditches that connect the wetlands with the inland areas of the watershed. The pike use this network every spring as they swim inland from Green Bay to spawn.

In ecological terms, pike are one of Green Bay's keystone predator species. They will eat almost anything, including other fish, frogs and shrews. Pike are an important part of the food chain and help maintain the stability of the entire ecosystem. But they will maintain their ecological and economic importance only if their spawning grounds are protected.

**3 Northern pike begin spawning** as soon as the ice breaks up in spring. Under cover of night, adult pike swim from Green Bay as far as 20 miles inland to spawning areas, using the network of coastal zone streams and ditches. The shallow, grassy swales near farm fields and along roadsides provide travel lanes inland, and can themselves provide spawning habitat. Often, the water in the streams and ditches is only 10 inches or less deep.

These small streams and ditches are important to pike spawning, but are important for other reasons as well. They help prevent flooding by storing rain and melting snow, and help prevent pollution of downstream waters by trapping excess sediment and absorbing nutrients such as phosphorus.

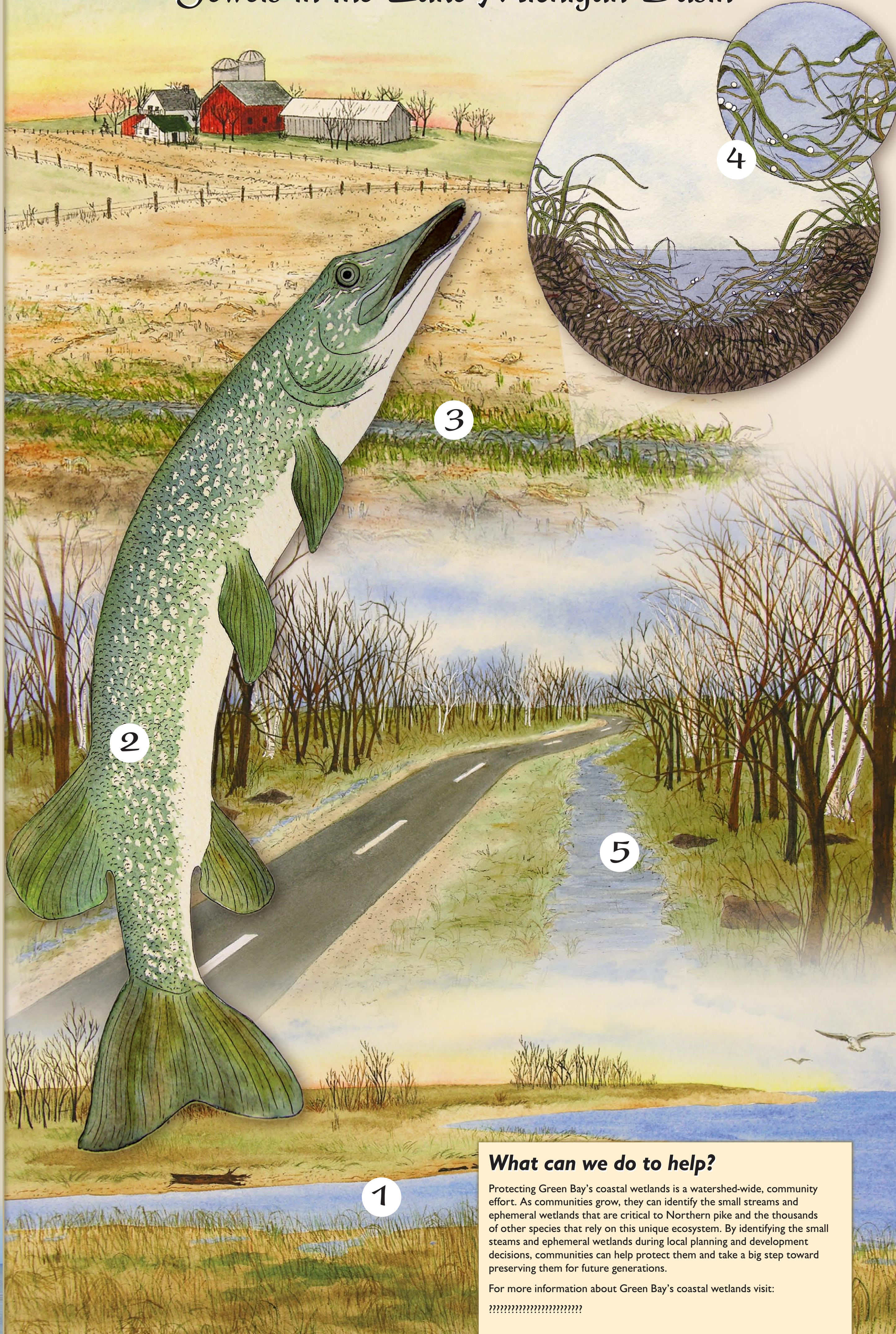
**4 Once they reach** a suitable spawning site, the pike broadcast their adhesive eggs over the submerged vegetation. The vegetation must be clean and free from algae and sediment for the eggs to attach. Runoff of sediment and nutrients from nearby fields can coat the vegetation and make it difficult for the eggs to attach. Decaying algae consume oxygen in the water, depriving eggs and "fry" of the oxygen they need to hatch and live.

After hatching, the pike fry re-attach to the vegetation for four or five days and absorb their yolk sacs. The fry then detach from the vegetation to feed on insects and other small fish.

**5 By the middle of June** the young pike start their journey back to Green Bay using the same network of ditches and small streams that their parents used during spawning. They drift downstream with the current, resting, feeding on insects and other fish and growing larger.

By the end of summer the "young of the year" pike, less than 1/2 inch long when born but now 10 inches long, are large enough to compete with the larger fish in Green Bay. The waterways and wetlands they occupied in spring are now dry, and the casual observer would not suspect they are looking at extremely important spawning and rearing habitat.

The next spring, the mature pike will repeat the cycle, often returning to the same locations where their parents spawned.

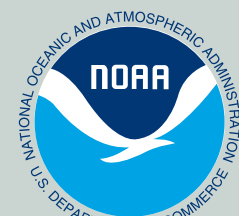


### What can we do to help?

Protecting Green Bay's coastal wetlands is a watershed-wide, community effort. As communities grow, they can identify the small streams and ephemeral wetlands that are critical to Northern pike and the thousands of other species that rely on this unique ecosystem. By identifying the small streams and ephemeral wetlands during local planning and development decisions, communities can help protect them and take a big step toward preserving them for future generations.

For more information about Green Bay's coastal wetlands visit:

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