

Waterlogs - July 2021

Today, the Bay of Quinte is a healthy and vibrant ecosystem. Now, we must focus on keeping it this way

FOOD CHAIN VS FOOD WEB

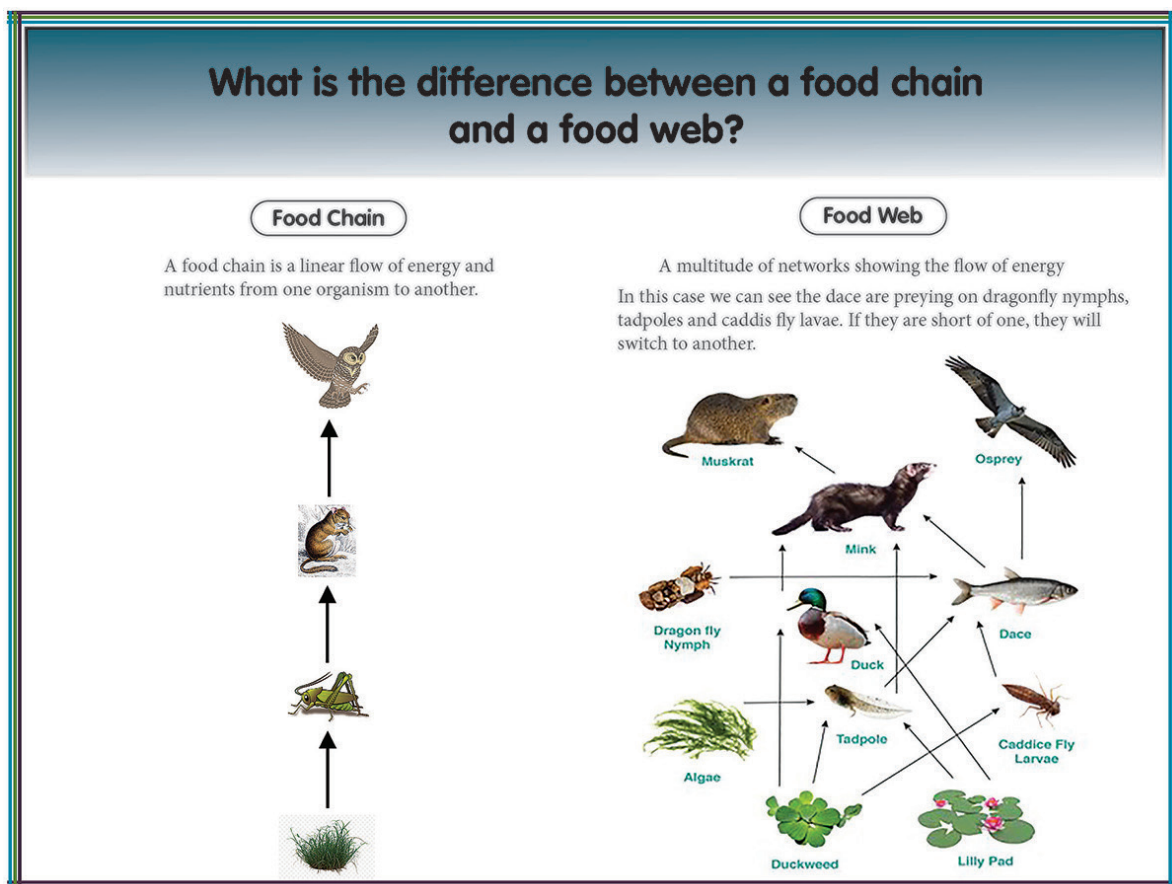
What is the difference between a food chain and food web

Over the years, in the Bay of Quinte there have been changes to the aquatic food supply. Mostly, due to reductions in phosphorus inputs and the introduction of invasive species. How that food supply is distributed is described, more accurately, as a food web instead of a single linear food chain.

At the heart of food consumption for any species in any ecosystem is one thing: energy. Energy can take multiple paths, and the types of paths depend on a variety of factors. How the species consume this energy and the path energy takes from one species to the other defines a food chain and a food web.

In a food chain there is only a linear path that shows the flow of energy and nutrients from one species to another species in an ecosystem. In an aquatic ecosystem it starts from producer species such as algae and ending at apex predator species such as walleye.

A food web is more complex, as energy is interconnected to multiple paths among various species. In a food web various populations of producer species are eaten by any number of consumer populations. If they are short of one species they will switch to another species.



In partnership locally with Lower Trent Conservation and Quinte Conservation

POINT AND NON-POINT SOURCES

Both point and non-point sources contribute excess phosphorus to the Bay of Quinte. Excess phosphorus, has been identified as contributing to a number of the environmental issues within the Bay of Quinte. Phosphorus (P) is a naturally-occurring element, essential to all life, present in all cells, nervous tissue and bones. In just the right amount, it's a beneficial, life-giving nutrient for rivers, lakes, bays, and streams. On the other hand, too much phosphorus plays havoc with things.

In aquatic ecosystems like the Bay of Quinte, it's the ability of phosphorus to promote rapid growth that causes problems. It takes only 1 lb. of phosphorus to grow 500 lbs. of algae! This nutrient-enrichment process is known as eutrophication, and it's a classic example of too much of a good thing.

When Europeans arrived in the 1700s, the Bay of Quinte was in a balanced or "mesotrophic" state – meaning a moderate amount of nutrients. By the 1970s, it had changed to a "hyper-eutrophic" state – meaning an excessive amount of nutrients. Hyper-eutrophic is hyper-productive; runaway algal growth is stimulated by the high nutrient levels.

The BQRAP has reduced the amount of phosphorus entering the Bay from both point and non-point sources. With the reduction in phosphorus levels, water clarity has improved due to reduced algae, underwater plants have re-grown providing fish with habitat, helping to increase the varieties of fish in the Bay.

Despite the reductions in phosphorus inputs, the current phosphorus levels are still a major concern. This is why a Phosphorus Management Plan is under development.

What's the difference between point and non-point sources.



POINT SOURCE

Point source pollution is defined as coming from a single point, such as a factory or sewage treatment plant.



NON-POINT SOURCE

A **non-point source** is not so easily identifiable as the pollution comes from diffuse and variable points across the landscape such as agricultural erosion and runoff or stormwater runoff.

PHOSPHORUS MANAGEMENT PLAN

The Phosphorus Management Plan will address phosphorus sources from sewage treatment plants, urban stormwater, and agricultural runoff through these proposed targets:

- Reduce phosphorus loading from agricultural land use by 20%. This can be accomplished by implementing Best Management Practices.
- Reduce sewage treatment plant and industrial wastewater treatment plant phosphorus loadings by an average of 60%. This can be accomplished through maintaining a phosphorus effluent limit of 0.1 mg TP/L design objective for all sewage treatment plants and industrial dischargers in the Bay of Quinte watershed.
- Reduce urban stormwater loadings by 50%. This can be accomplished through adoption and implementation of existing recommended Pollution Prevention Control Plans, enhanced stormwater management controls, retrofits, and use of Low Impact Development technologies.

Read the draft Phosphorus Management Plan, [Here](#)