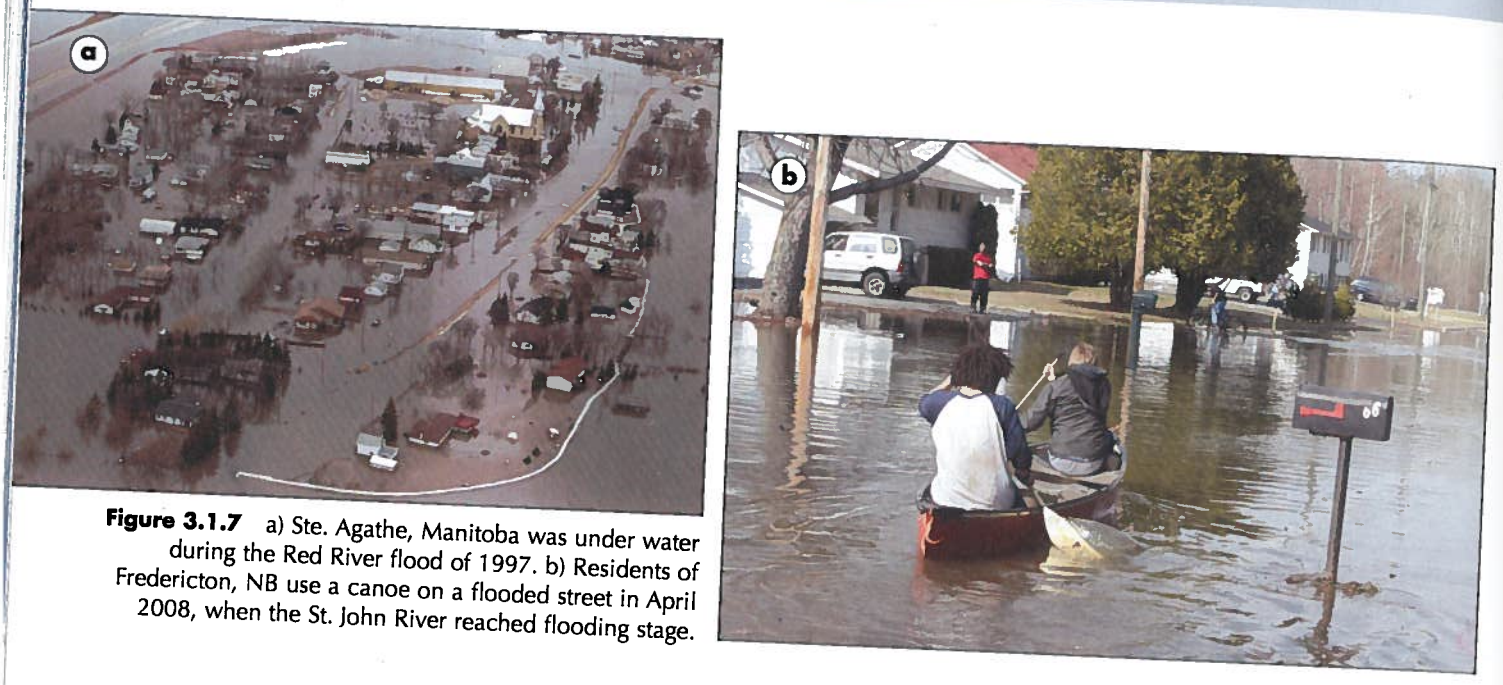

Figure 3.1.7 a) Ste. Agathe, Manitoba was under water during the Red River flood of 1997. b) Residents of Fredericton, NB use a canoe on a flooded street in April 2008, when the St. John River reached flooding stage.

Heavy accumulations of run-off from large regional drainage systems can cause downstream floods. Such floods occur during or after long-lasting, intense storms or rapid spring thaws of large volumes of snow. The amount of water involved in a downstream flood can cause extensive damage. In Canada, such floods have occurred along the Red River in Manitoba and the Saguenay River in Quebec.

Watersheds

A **watershed** is an area that drains all its hydrological components into a particular body of water. Hydrological components of watersheds include rivers, lakes, ponds and reservoirs, groundwater aquifers, snowpacks, glaciers, ice fields, wetlands, and precipitation. Canada's largest watersheds are the Atlantic, Pacific, and Arctic oceans, Hudson Bay, and the Gulf of Mexico. Each of these watersheds encompasses a number of drainage basins. Figure 3.1.8 illustrates the 25 major drainage regions in Canada.

Watersheds have been historically significant in determining boundaries between countries, and also trade routes. For instance, in Canada, in 1670, the British government gave the Hudson Bay Company complete control over the Hudson Bay watershed, an area then known as Prince Rupert's Land, for the fur trade.

Watersheds are also important as ecoregions or bioregions, areas that share similar environmental conditions and species. Because ecoregions often straddle political boundaries, joint political management is required. The largest fresh watershed in the world—containing the Great Lakes and the St. Lawrence River—is managed through many international agreements, including the International Joint Commission and the *North American Free Trade Agreement*'s Commission for Environmental Cooperation, both of which involve Canada and the United States. The International Watersheds Initiative has also been created to promote cooperative watershed management.