

Lake Winnipeg - Signs of Cultural Eutrophy

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Lake Winnipeg, the 10th largest freshwater habitat for fish in the world, is the recipient of water and contaminants from the second largest drainage basin in Canada, spanning 4 provinces and three US states. The lake supports a fishery valued in excess of \$15 M annually and is used as a reservoir by Manitoba Hydro in the course of generating export power valued in excess of \$350M annually. Though large and valuable, little research has been done on Lake Winnipeg. Bajkov and Neave in the 1920s and Brunskill in 1969 represent the only comprehensive studies dealing with spatial and temporal variance in physical, chemical and biotic factors. Since 1969 five smaller studies (spatially broad but temporally limited) by DFO and the Province of Manitoba have yielded data sets covering the main components of the food web. These limited data sets (algal community, zooplankton community, nutrient concentration, surface chlorophyll) along with the chemical and fossil record found in cores, all suggest Lake Winnipeg is becoming increasingly eutrophic. Possible triggers for this change are elevated loading of phosphorous from agricultural runoff and/or municipal effluent and/or increases in light penetration and phosphorous recycling brought about by hydroelectric impoundment.