Aquatic Plants

Aquatic plants play numerous vital functions in a lake. Depending on the type of plant these functions can include:

- habitat for fish, insects, and small invertebrates
- food for waterfowl, fish and wildlife
- oxygen producers
- spawning areas for certain species of fish in early spring
- help to stabilize marshy borders of the lake
- help protect and stabilize shorelines from wave erosion
- nesting sites for waterfowl and other marsh birds

Surveys of the aquatic plants in Round Lake, Osprey Lake and the Tiger Cat Flowage have not been conducted. Therefore the aquatic plant communities and the roles they play in these lakes are relatively unknown at this time. Eurasian Water Milfoil has been discovered in both Round and Osprey Lakes and control measures have been implemented to control its spread. As funding becomes available it is recommended that macrophyte and floristic quality index surveys of these lakes be performed to better understand the role that aquatic macrophytes play in these lakes.

Groundwater *(maybe this section should be termed hydrology instead)*

Round Lake

Hydrologic budget estimates were completed for Round Lake and Osprey Lake in 1999 and 2004 respectively. A component of these hydrologic budgets included estimates of groundwater inflow and outflow to and from the lake. A hydrologic budget for the Tiger Cat Flowage has not been performed.

The hydrologic budget for Round Lake based on the 1998-99 water year (October 1, 1998 through September 30, 1999) was calculated by measuring or estimating the important components of the budget. The important components of the budget for Round Lake include:

- Precipitation
- Runoff
- Evaporation
- Change in lake storage
- Stream Inflows
- Lake Outflow
- Groundwater base flow

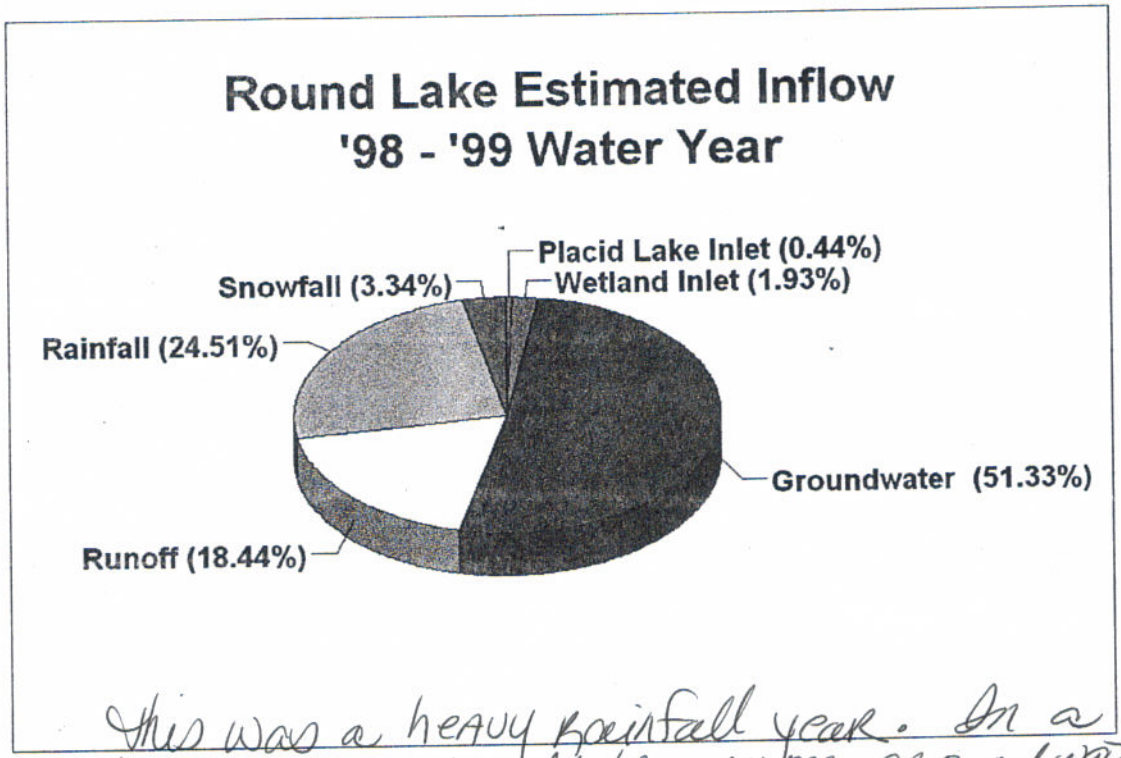
Figures 1 and 2 present the estimated hydrologic budget for Round Lake. As the budget indicates, groundwater flow contributes over half of the estimated annual water load to the lake. The significant amount of groundwater contribution is likely a result from the creation of the Tiger Cat Flowage. The creation of the Flowage raised the hydraulic head of the groundwater up-gradient of Round Lake by approximately thirteen feet. This may benefit Round Lake in times of drought because of the increase in groundwater baseflow but during times of heavy precipitation, it may also delay the lowering of the water level.

Direct precipitation on the lake surface was the next largest contributor. This includes rainfall and snowfall. Runoff was also a significant contributor. The inlets to the lake made up the remainder of the annual water load. The watershed runoff volume represents an annual water yield of approximately 17.3 inches from the Round Lake watershed. This runoff yield, divided by the 43.06 inches of total precipitation for the water year, results in a runoff coefficient of 0.402 (40.2% of the total precipitation is estimated to runoff the watershed and reach the lake). The large amount of watershed runoff to reach the lake indicates that watershed runoff can have a significant impact on the water quality of Round Lake.

Evaporation and water leaving Round Lake via the outlet were nearly identical. Both were approximately 19% of the outflow apiece. Groundwater seepage accounted for a major portion of the outflow comprising nearly 62%. It is important to note that the 1998-1999 water year saw precipitation that was 41% above normal for Sawyer County. This likely had a significant influence on the hydrologic budget components for that year.

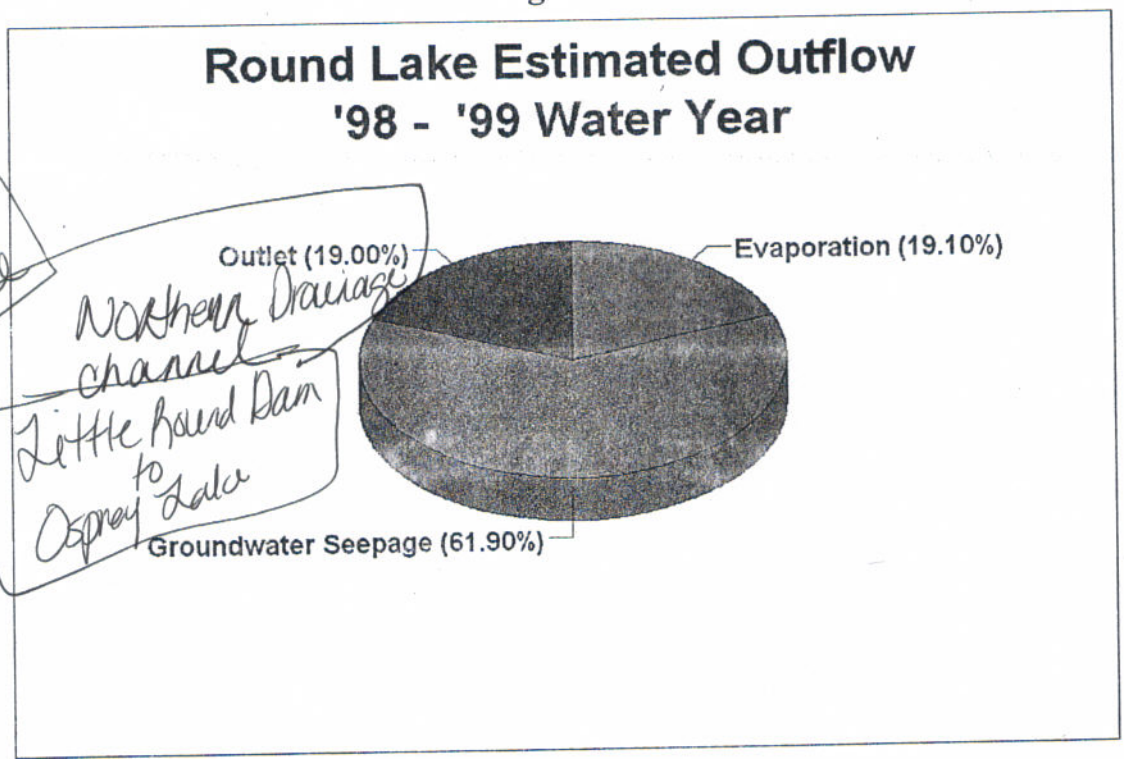
During a year with "normal" rainfall the groundwater component would likely be an even larger percentage of the overall hydrologic budget.

Figure 1



This was a heavy Rainfall year. In a Normal year - there would be more groundwater.

Figure 2



all the same

Osprey Creek

Northern Drainage channel

Little Round Dam to Osprey Lake

Osprey Lake

The hydrologic budget for Osprey Lake based on the 2004 water year (October 1, 2003 through September 30, 2004) was calculated by measuring or estimating the important components of the budget. The important components of the budget for Osprey Lake include:

- Precipitation
- Runoff
- Evaporation
- Change in lake storage
- Stream Inflow
- Lake Outflow
- Groundwater base flow

Figures 3 and 4 present the estimated hydrologic budget for Osprey Lake. The inflow budget indicates that the inlet from Little Round Lake is the major contributor of water to Osprey Lake. It accounts for over 68% of the inflow. This large contribution of water from Little Round Lake indicates that the water quality of Osprey Lake is influenced by the water quality of Big and Little Round Lakes which are upstream. As the water quality of those lakes change, a corresponding change would also be noted in Osprey Lake. Runoff from the watershed was the next largest with over 20%. The watershed runoff volume represents an annual water yield of approximately 12.2 inches from the Osprey Lake watershed. Direct precipitation on the lake surface, which is comprised of both rain and snowfall, accounted for just over 7% and lake storage comprised the remainder at 3.9%. Groundwater flow does not appear to be significant contributor of the inflow to Osprey Lake.

Water leaving Osprey lake via the outlet accounted for 81% of the outflow budget. Groundwater seepage was the next largest output at over 13% and evaporation from the lake's surface comprised the remainder at nearly 6%.

Figure 3

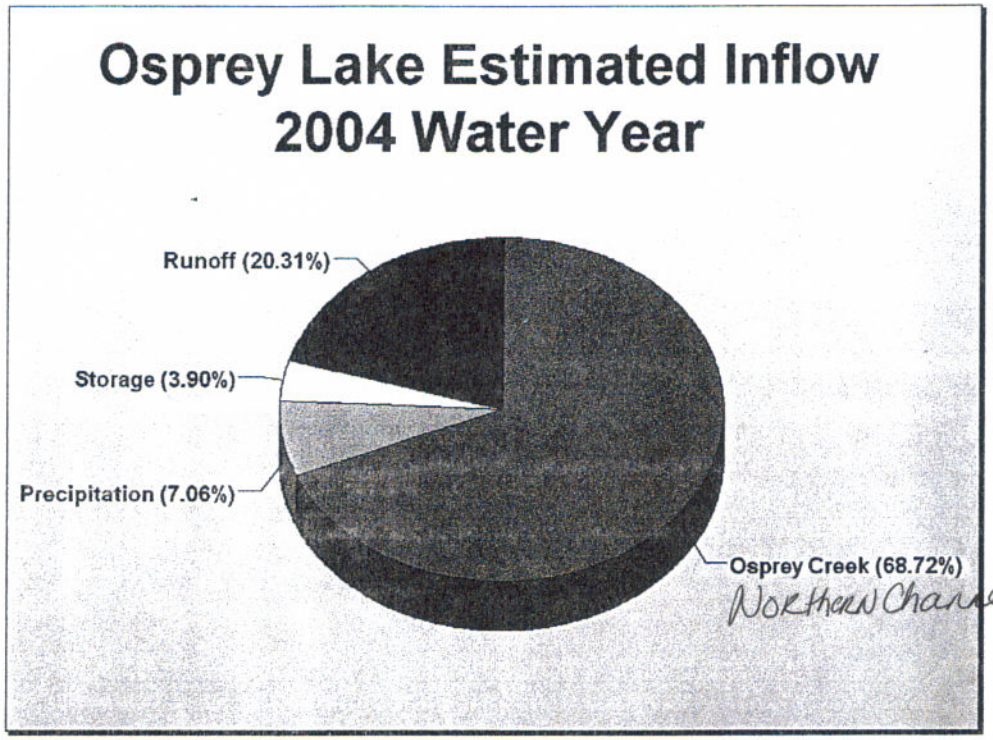


Figure 4