

A SUMMARY OF COMMERCIAL WHITEFISH DATA

REDGUT BAY - RAINY LAKE

License FF915

**Ontario Ministry of Natural Resources
Fort Frances District
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Table 1: Population characteristics of whitefish from the commercial catch of FF915 Redgut Bay of Rainy Lake. 2009.

year	sample size (n)	mesh size (mm)	mean age* (yrs)	modal age (yrs)	age range (yrs)	mean TL (mm)	TL range (mm)	mean RWT (g)	RWT range (g)	total annual mortality (%) (ages)	sex ratio M:F (%)
2009	226	140	11.38	6	4-21	536	435-626	1808	1000-6840	20 (6-14)	50:50

* age determination from pectoral fin ray
 T.L. = Total Length
 RWT = Round Weight

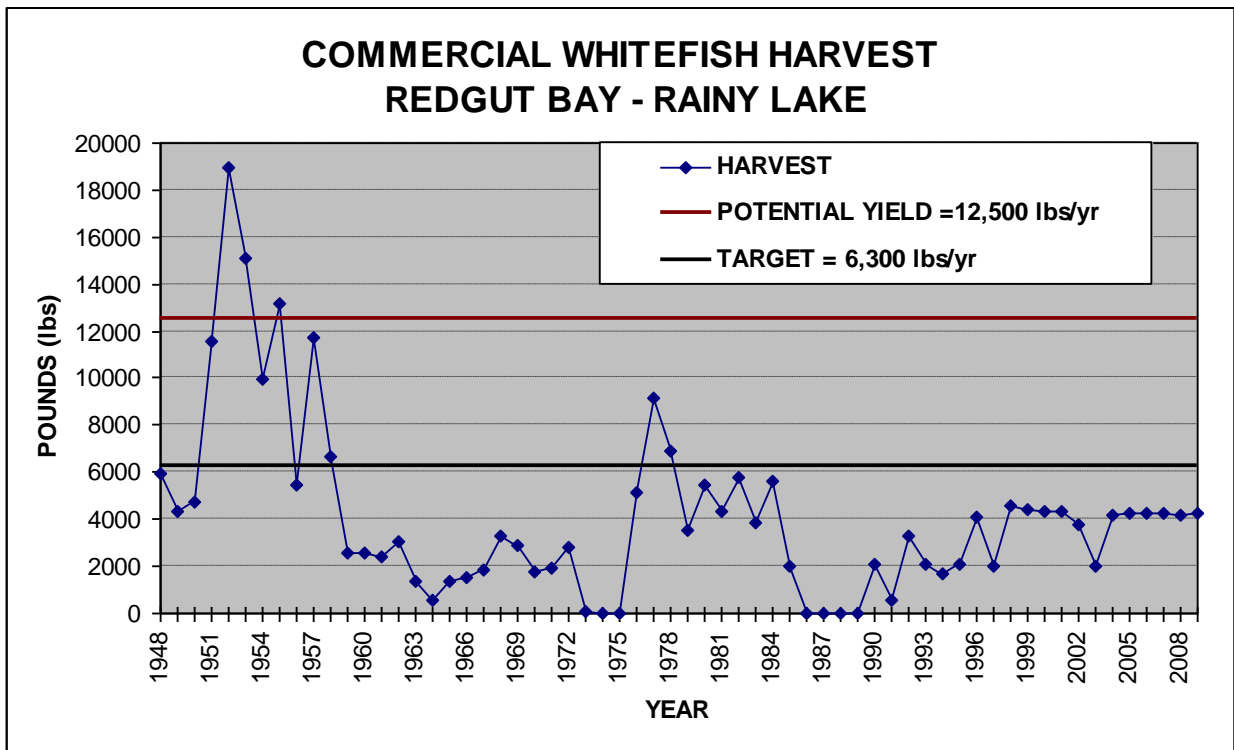


Figure 1: Commercial whitefish harvest, Redgut Bay Rainy Lake, 1948-2009.

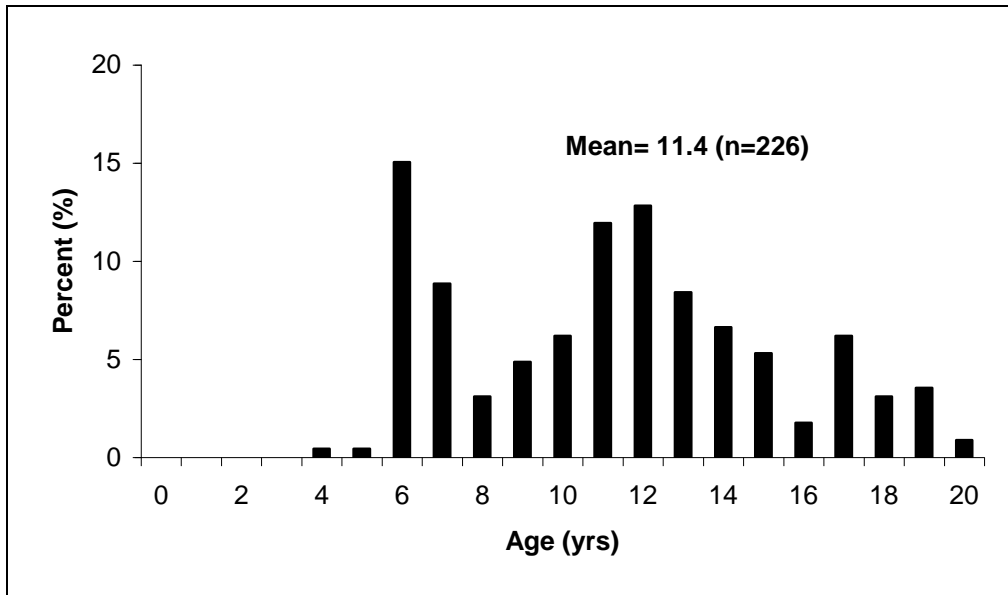


Figure 2: Age composition of lake whitefish from the commercial catch of FF915, Redgut Bay of Rainy Lake, 2009.

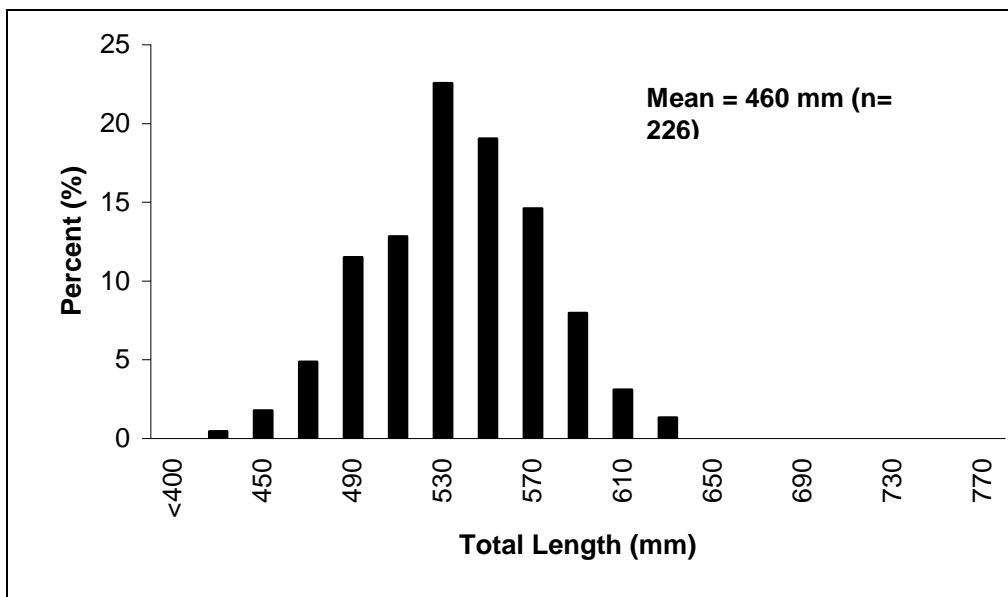


Figure 3: Length composition of lake whitefish from the commercial catch of FF915, Redgut Bay of Rainy Lake, 2009.

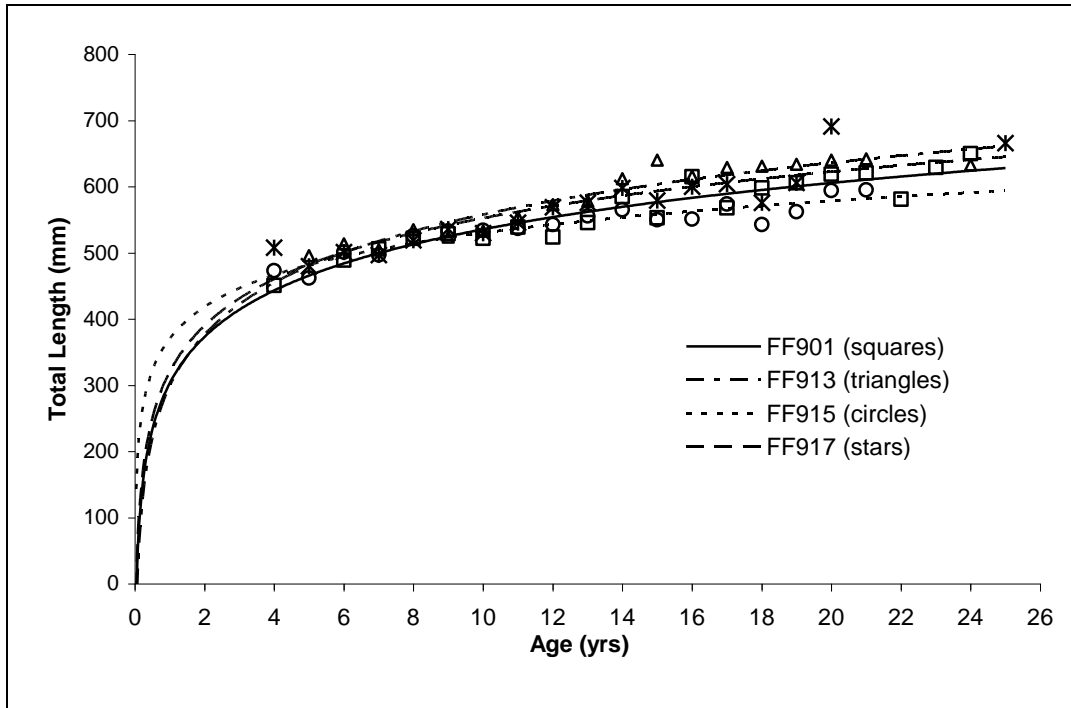


Figure 4: Lake whitefish growth (total length at age) for combined sexes in the South Arm, North Arm and Redgut Bay of Rainy lake based on Commercial catch sampling, 2009.

FF915 SAMPLING DETAILS:

- dates:

- July 13, 22, 30, 2009

- in 2009 all fish were sampled from 140 mm (5.5") stretched mesh.

- all fish sampled were sexually mature (both sexes)

- mean total length of fish captured in 140 mm (5.5") mesh was 536 mm (21 in) in 2009.

- mean round weight of fish captured 140 mm (5.5") mesh was 1808 g (4.0 lbs) in 2009.

- mortality estimates based on Chapman-Robson method from first fully recruited age to age 14. Total annual mortality in 2009 was 20%.

OBSERVATIONS:

- Age composition of the catch in 2009 shows a total of 18 age classes present, with ages ranging from 5 to 21 years. Age 6 and 7 fish as well as age 11,12 and 13 are strong year classes and are well represented.
- Three age classes (11,12 and 13 yrs) contributed at least 15% to the catch sample. These three ages represented 33% of the total catch. Manitoba DNR (In: MacCallum, 1980) recommends that three year-classes should contribute at least 15% of the age composition, and that two of these year classes should be 75% mature, in order to provide long-term sustainable catches.
- A mean age of 11.38 years in 2009 (Table 1) is close to the mean ages observed in the two North Arm areas(10.60 and 11.53 yrs in 2009) and slightly higher than that observed on the South Arm (9.53 years in 2009) .
- Recruitment to the population is evident in all years, with the age 6, 7 and 10-15 year olds being the strongest year classes.
- Mean age of the catch (11.38 years) is above the mean age of maturity expected for whitefish ie. 4 to 6 years (5.5-6.5 years on Lake Nipigon). The average age of the catch should be a minimum of 2 years above the average age of maturity to ensure a sustained harvest to the fishery (Christie and Regier, 1973; Manitoba DNR in MacCallum, 1980).
- Fewer than 7 age classes available to a commercial fishery would be cause for concern. (OMNR, 1999) In 2009, there were 18 age classes represented in the Redgut fishery.
- Length composition in 2009 indicates the majority (%) of the catch in the length intervals of 490-570 mm. Mean total length was 536 mm over 11 (20 mm) length intervals, with no fish larger than 630 mm sampled.

- Growth may be slightly slower than that measured from the North and South Arms, however growth rates in 2009 are similar in all 3 basins of Rainy Lake (South Arm, North Arm and Red Gut).
- Total mortality rate was 20% in 2009. This is below the maximum level of 60%, which is recommended to provide a sustainable fishery (OMNR, 1983 - SPOF#15). Mortality is lower than South Arm which has averaged 36% since 1987, the northern section of the North Arm, which has averaged 41% since 1997 and the southern section of the North Arm which has averaged 51% since 1985.

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