

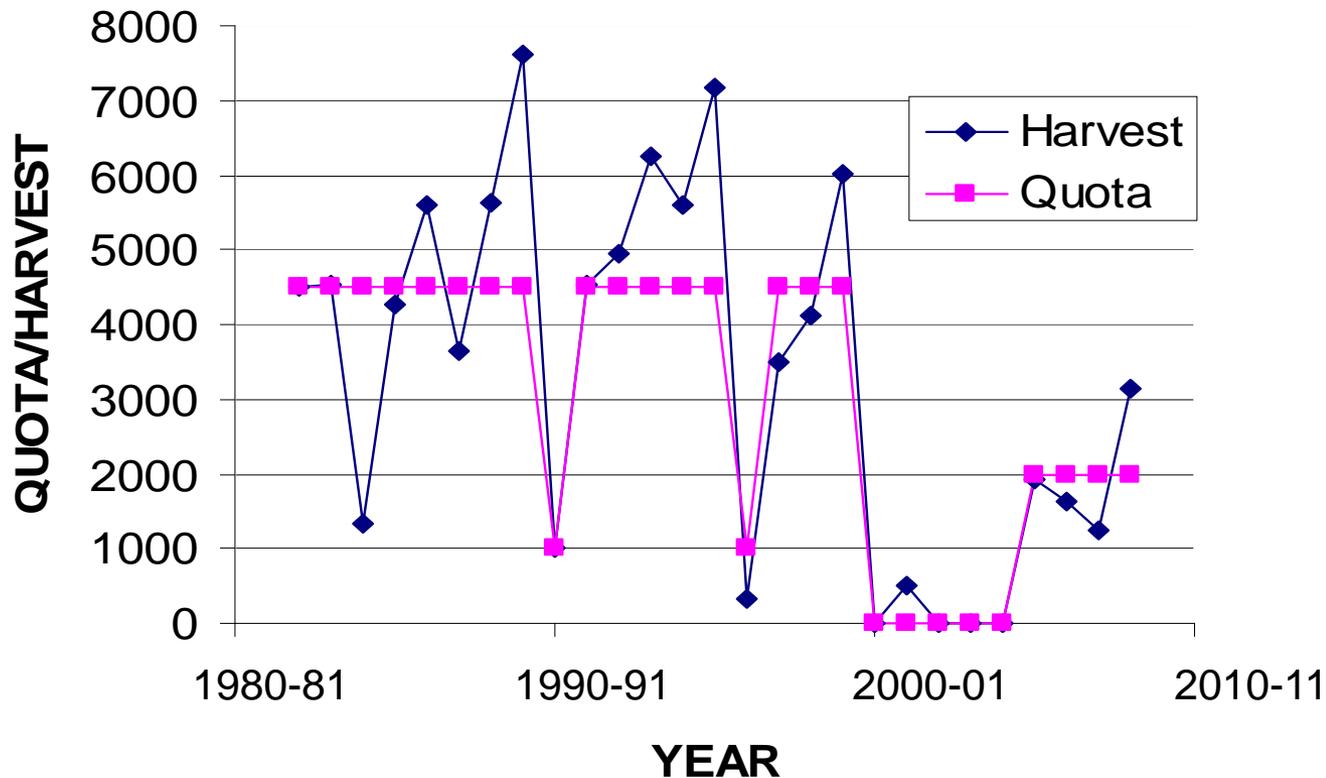
Kingnait Fjord Charr Science Special Response

Canadian Science Advisory Secretariat

Presented by

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Harvest Data (Commercial/Exploratory)



Quotas have been adjusted according to concerns with stock health

Harvest and quota have not matched. Note: great variability in harvest.

What have we learned from other studies?

- Cambridge Bay
- Sylvia Grinnell
- Kipisa

Cambridge Bay Example

- Early harvest rates were unsustainable.
- A strong cooperative relationship led to the implementation of management measures
 - Closures & quotas readjustments to sustainable harvest levels (3.5%-6.5%)
- Currently, stocks appear to be healthy (RAP 2004).

Sylvia Grinnell River Example

- 1947-1951 & 1958-1966 – commercial harvest > 10%.
- 1966 stock severely reduced – commercial fishery closed.
- Effect of overharvest has lasted for decades.
- Cooperation has helped recover the stock to a stable but reduced state.

Kipisa Example

- Cooperation from HTO was key to the stock assessment .
- Sustainable harvest rates were determined using a combination of IQ and science.
- Exploitation rate of 5% appears sustainable.

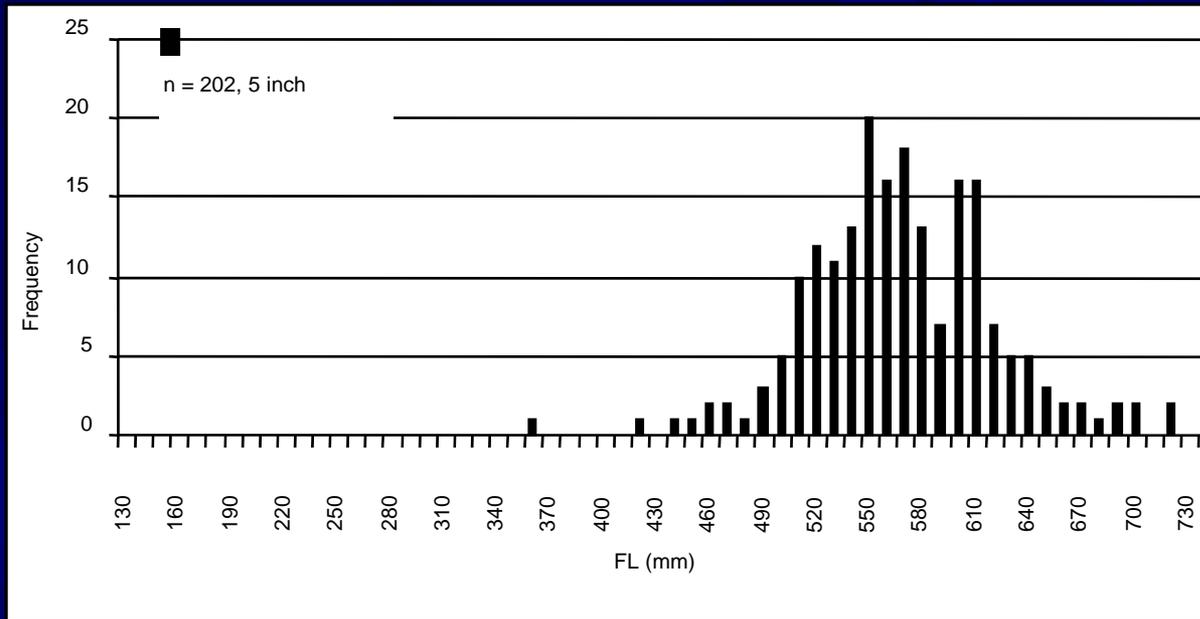
Lessons Learned

- Exploitation rate
 - >10% is too high.
 - 3.5%-6.5% seem to be sustainable.
- Cooperation
 - Key to recovering stocks.
 - Necessary to implement good management practises.
- Harvest levels are needed to prevent collapse of stocks or further depletion.

Current Kingnait Status

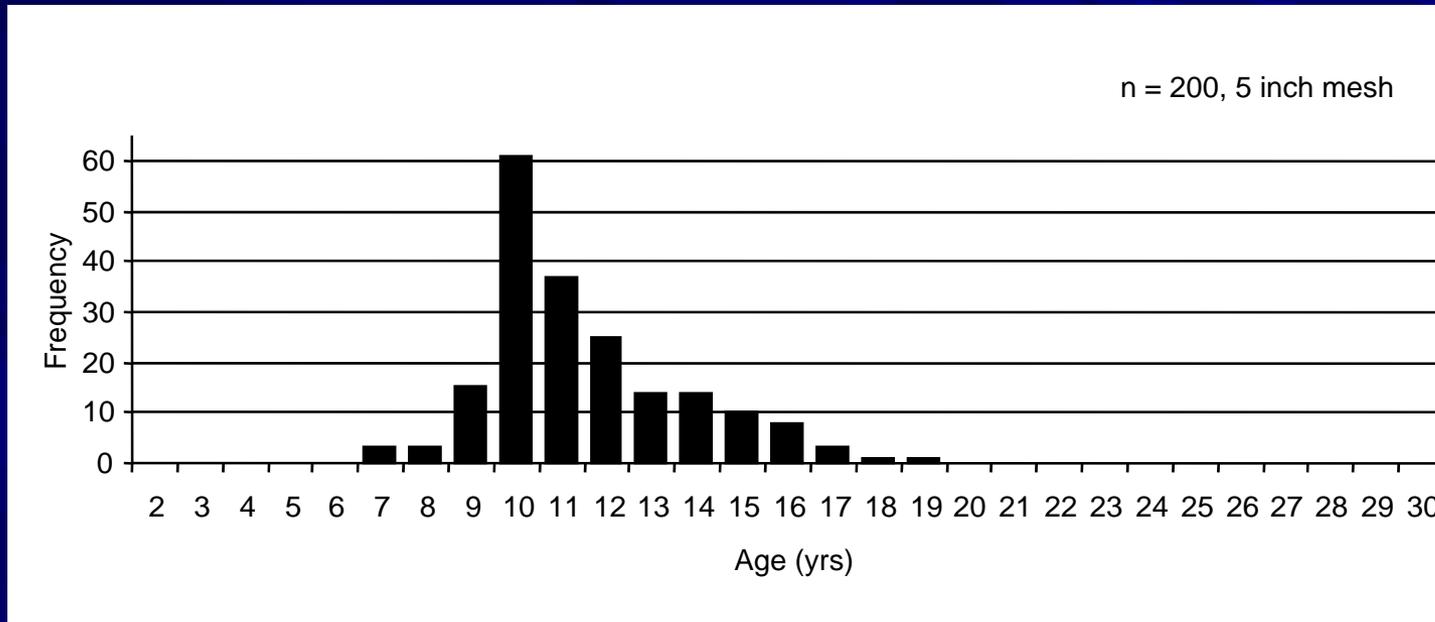
- Length frequency
- Age
- Population abundance

Fork Length Frequency – winter - 2007



Most Fish Caught by Commercial Nets are over 500 mm.

Age Frequencies – Winter 2007



Under harvest regime of between 0 and 2000kg:
the age structure is broad with many ages of spawners

Population Size

- Mark-recapture – 1993
- – fish over 450mm
- Variable estimates
- 48000 fish (96000kg) – Upper Bound
- 27000 fish (54000kg) - Lower Bound

- 5% exploitation rate
- Total Harvest Level – 2700 – 4800 kg

DFO Science Conclusions

- Stock status uncertain
 - Population estimate is not current
 - Under current regime lo harvest for 8 years age structure is acceptable
 - Subsistence harvest uncertain
- 5% exploitation rate sustainable
 - (5% of total fishable population)
- all sources of harvest should be included

Total Harvest Levels

- Harvest levels must include all types of harvest.
- Previous harvest levels did not necessarily include all types of fishing.
 - Led to risky levels of harvest.
- If we accept a low to moderate risk based on the previous population estimate as the total harvest level,
 - the stock should be sustainable.

Recommendations

Total Sustainable Harvest

- Subsistence (IQ) + Commercial (DFO)

Total Harvest	Risk
> 4800kg	High
2700-4800kg	Moderate
< 2700kg	Lo

Recommendations (Future)

To reduce risk or improve
estimate of sustainable harvest.....

- Determine subsistence harvest
- New estimate for population size
- Long term (could start now) experimental harvesting to reduce uncertainty.

General Recommendations

- Arctic charr easily over-harvested
- Must learn as we go – learning may take decades
- Cautious but collaborative approach to development most successful.