

## Kokanee Increasing in Size and Numbers

by *Bob Lindsay*

Ride the Ministry of Transportation & Highways' Galena-Shelter Bay ferry anytime from late April to the end of August and you might see Provincial biologists distributing a nitrogen-phosphorus fertilizer into the reservoir.

When the fertilization of the Arrow Lakes Reservoir began two years ago, the Upper Arrow kokanee fishery was closed and kokanee stocks were on the verge of collapse. In 1998 the number of kokanee returning to spawn in the Upper Arrow had declined by 90% from 500,000 to 50,000 over the preceding 25 years. The Province had closed the local kokanee fishery and halted the Gerrard rainbow stocking program in the Upper Arrow.

Ministry of Environment, Lands and Parks, and BC Fisheries research scientists working with the Columbia Basin Fish & Wildlife Compensation Program to investigate this decline found the Arrow system, like Kootenay Lake, was suffering from a nutrient deficiency. The trapping of nitrogen and phosphorus nutrients behind upstream dams reduced the production of phytoplankton which kokanee and other sport fish, including rainbow and bull trout, need to flourish.



MELP and BCF scientists responded by developing this innovative fertilization project. The ferry's backwash mixes and spreads liquid fertilizer which is then absorbed into the food chain within 24 hours. A predetermined amount of fertilizer, designed to mimic the historical nutrient loading cycle, is released each week.

The results to date should be very good news to anglers. This year, the number of kokanee returning to spawn in the Upper Arrow has increased to 193,000. Average kokanee size has also increased from 22 cm to over 30 cm, the largest seen in 30 years of data. If these results are any indication, anglers may expect that bull trout and rainbow trout that prey on kokanee may also be bigger and more abundant.

This very strong evidence of increased kokanee abundance has led MELP to re-open the Upper Arrow to kokanee fishing this year, with an aggregate daily catch limit of five fish from Upper and Lower Arrow lakes combined.

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