Cryopreserved Sperm – How much is enough? How much is too much?

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Cryopreserved sperm has been collected in the Captive Broodstock Program since 1995 when we found ourselves with maturing 2 and 3-year-old males and no females to spawn them with. This reserve of cryopreserved sperm was first used to fertilize eggs in 1998 when the live males were not yet producing milt for the first ripe females of the spawn season. The assumption has been (1) that about 450 eggs can be fertilized with one 0.5 ml straw of cryopreserved sperm and (2) that too many straws on a few eggs could be detrimental because the cryopreservant material might block the micropyle of the egg. But were these assumptions correct? Our goal was to find the number of eggs that would yield the highest fertility when crossed with a 0.5 ml straw of cryopreserved sperm. From one of our earlier trials we found that small batches (250 – 500) of eggs had better fertilities than large batches (750 – 1000) no matter the number of straws used to fertilize them. Consequently we took small batches and put lots of cryopreserved sperm on them (2-8 straws). Though more trials are needed, the initial results were that more cryopreserved sperm does yield better fertilities and extra cryopreserved sperm on the eggs did not have a deleterious effect on the fertilities.