

***Summary of data from 2008 Atikokan Bass  
Classic (Marmion Lake)***

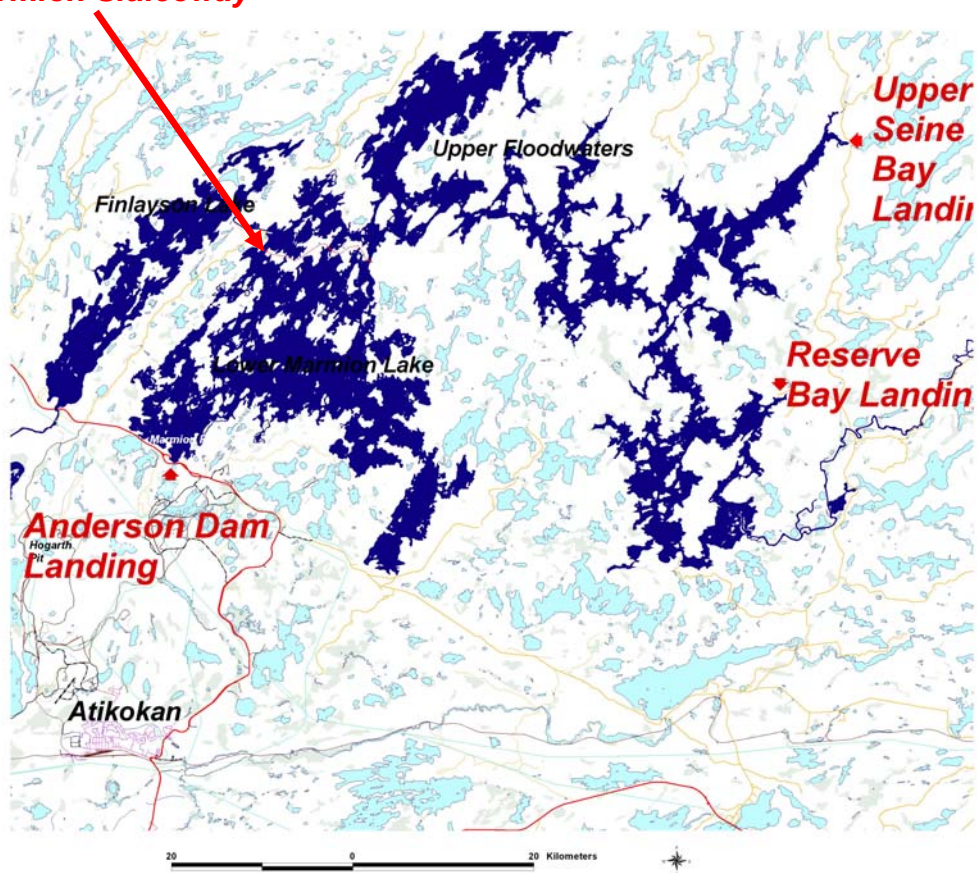
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## **Introduction**

This year is the first year of tournament being on Marmion Reservoir after being held on the Dashwa/Crowrock/Turtle system since 1994. Marmion Reservoir is a large (9460 ha) waterbody divided into Lower Marmion (3985 ha) and Upper Marmion (Upper Floodwaters) (5475 ha) by the Marmion sluiceway (Figure 1). The tournament was expanded from ~60 teams to ~ 100 teams. One of the expected results was that bass size would increase with the move. It was also expected that the increase in size of fish would mean higher stress on fish in live wells (more weight of fish in same volume of water). Partially because of this, the daily limit was reduced to 5.

### ***Marmion Sluiceway***



*Figure 1. Marmion Lake*

## **Results**

A total of 91 teams started the 2008 Atikokan Bass Classic. In response to questions about general fishing location, approximately 60% of anglers reported they fished only on Lower Marmion on both days of the tournament (Figure 2). The remaining 40% of the anglers fished either on the Upper Floodwaters or on both waterbodies with more anglers indicating that they fished on both on day 2.

Angling was very successful with 98% of anglers weighing full limits on day 1 and 92% on day 2.

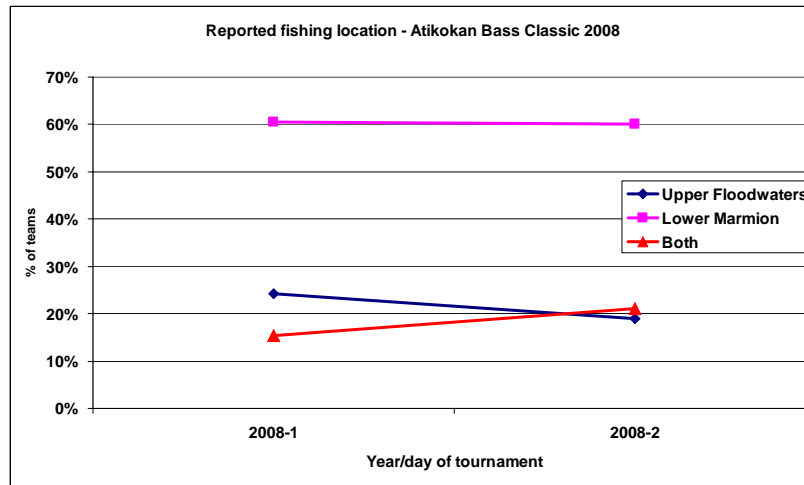


Figure 2. Angler reported fishing location by day for 2008 Atikokan Bass Classic

### Tournament Weigh-in Data

Table 1. Number and weight of smallmouth bass weighed at the 2008 Atikokan Bass Classic

Year	# of teams	# of fish	total weight (lbs)	average weight (lbs)	average weight (g)
2008	91	884	2321	2.6	1191

As expected, the size of fish was much larger than bass caught previously at the Dashwa/Crowrock/Turtle tournament where average size was 665 g (1.5lbs) and ranged from 483g – 772 g (1.1 – 1.7lbs). Sizes from Marmion are similar to bass weighed at the Fort Frances Bass Classic on Rainy Lake where average weights ranged from 950-1245g (2.1 – 2.8 lbs) between 1995 and 2004.

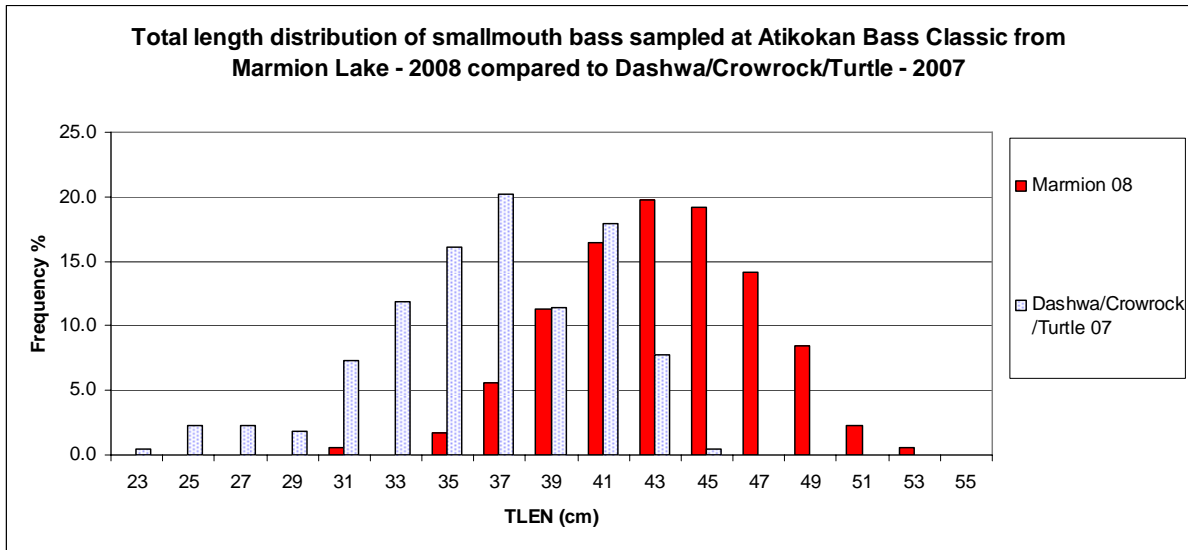
The weights for the 10 bass weighed as part of the winning catch averaged 1805g (4.0 lbs). To place in the top 3 teams, anglers need to have bass that averaged around 1725 (3.8 lbs). In previous tournaments, winning teams had bass that averaged 1025g (2.5 lbs).

The largest bass weighed in 2008 was 2315g (5.1 lbs). The largest bass ever weighed previously at the ABC tournament when it was on Dashwa/Crowrock/Turtle was 1815g (4.0 lbs) in 1998.

**MNR Sampling data**

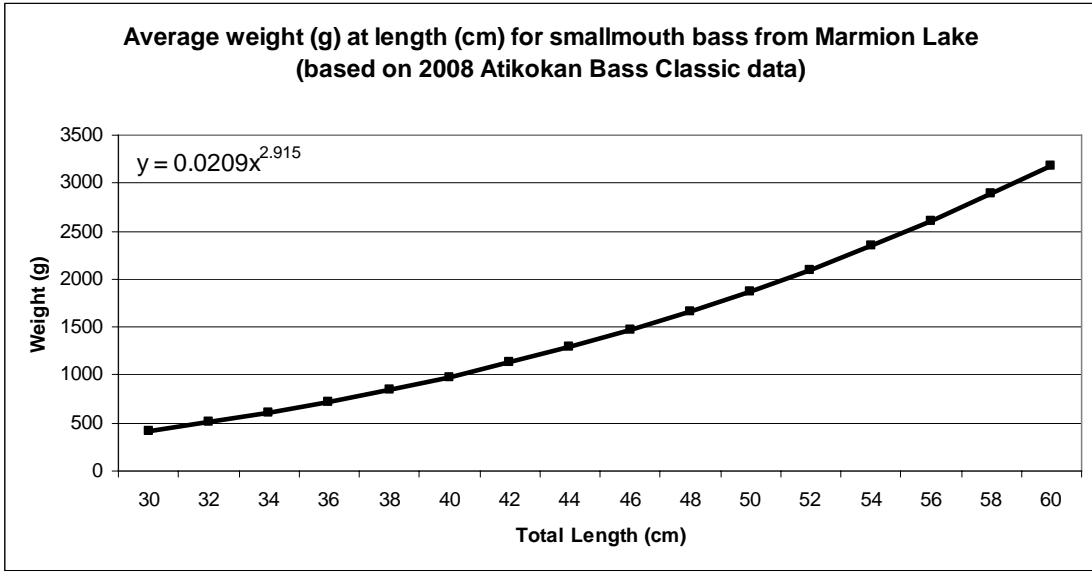
Year	sample size	avg. wt (g)	avg. wt (lbs)	avg. fork length (mm)	avg. total length (mm)	avg. total length (in)	avg. age (yrs)	Condition Index (rwt@300mm)
2008	177	1261	2.8	40.9	43.3	17.0	8.0	436

Bass sampled in 2008 averaged about 7 cm (3”) longer than fish sampled from Dashwa/Crowrock/Turtle in previous years (Figure 3). Fish Quality Index was 254, much higher than previous levels of 90-165 (1994-2007) and at the high end of the range from Rainy Lake bass which had FQI values of 188-250 between 1995 and 2008.

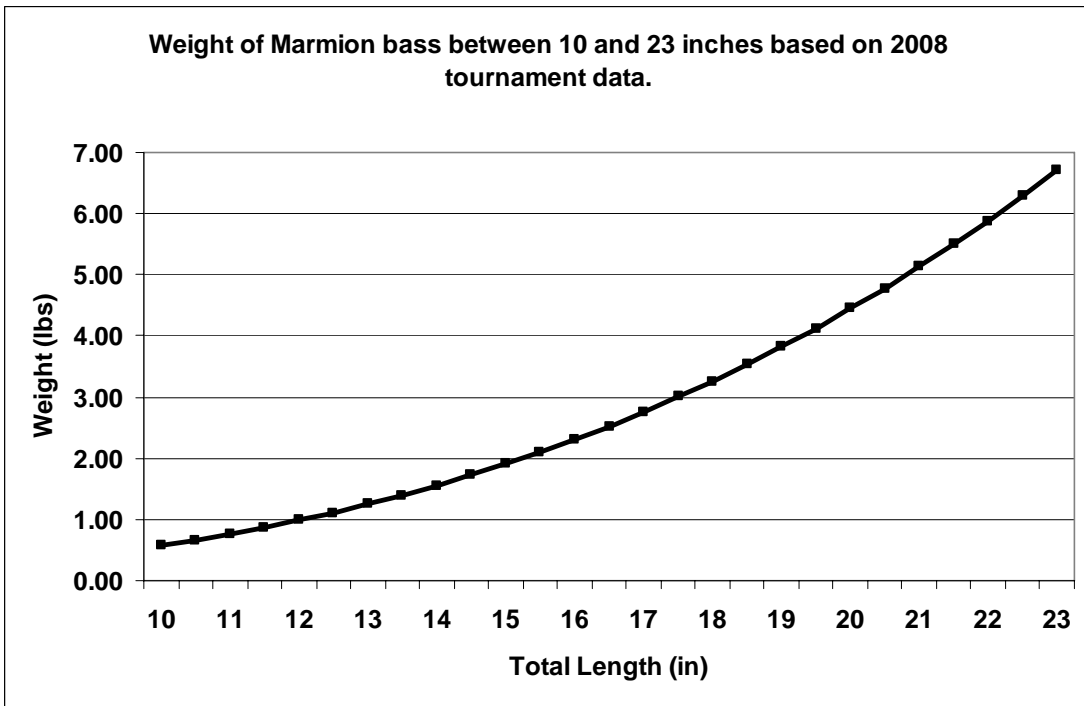


*Figure 3. Length distribution of smallmouth bass sampled from Marmion Lake in 2008 compared to Dashwa/Crowrock/Turtle from 2007.*

Condition (i.e. weight at a given length or how fat the fish are) of Marmion bass is similar to fish sampled from Dashwa/Crowrock/Turtle in recent years. Weight at length relationship for Marmion bass based on 2008 data is provided in figure 4.



a)



b)

Figure 4. Weight at length for bass from Marmion Lake based on 2008 Atikokan Bass Classic data in a) cm and b) inches.

Bass sampled from Marmion had a greater number of older fish, 7-12 yrs old, than in the Dashwa/Crowrock/Turtle sample from 2007 (Figure 5). The fish sampled from Marmion were from 6 yrs to 9 yrs, while Dashwa/Crowrock/Turtle was dominated by younger fish from 4 yrs to 6 yrs old (Figure 5).

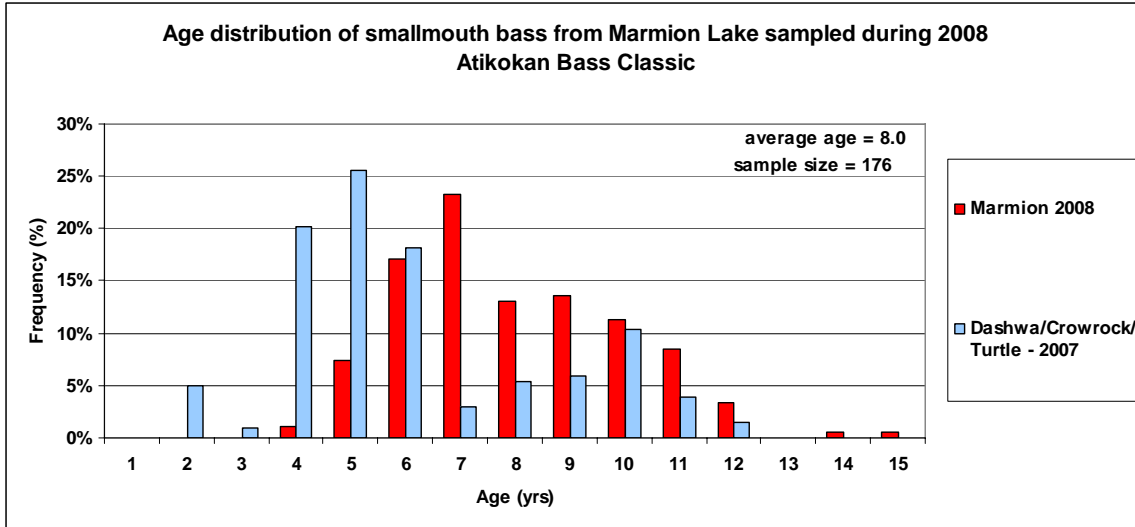


Figure 5. The age distribution of smallmouth bass sampled from Marmion and Dashwa/Crowrock/Turtle.

The smallmouth bass from Marmion in 2008 were larger at every age than the fish sampled from Dashwa/Crowrock/Turtle in 2007 (Figure 6). A smallmouth bass at the age of 6 yrs from Marmion was 40 cm, while the same age bass from Dashwa/Crowrock/ Turtle would average 37 cm.

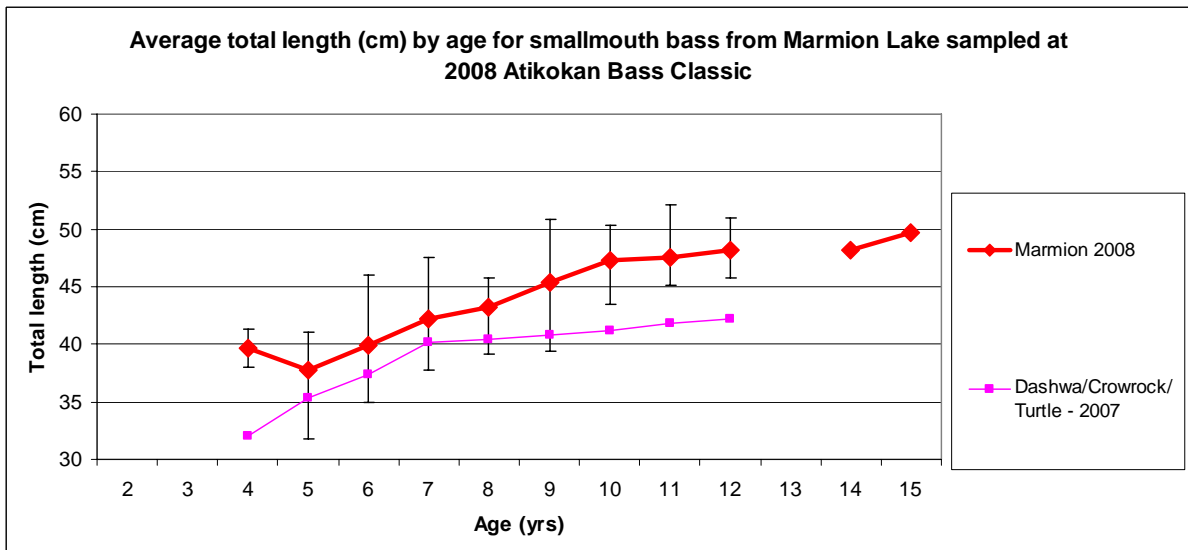


Figure 6. The average total length by age for smallmouth bass from Marmion and Dashwa/Crowrock/Turtle at the 2008 Bass Classic.

## Dissolved Oxygen and Temperature data

As in previous years, temperature and oxygen levels of competitor's livewells were measured at the landing prior to leaving the lake and in town prior to the weigh in. Oxygen was added to livewells at both locations if needed.

Conditions during the tournament were quite warm with maximum air temperatures of 25.6 °C for Friday and 28.3 °C for Saturday being reported by Environment Canada for Atikokan.

### Marmion Landing Data

Livewell temperatures measured at the Marmion landing increased between day 1 and day 2 by about 3°C (Figure 7). Despite this, dissolved oxygen levels increased slightly from an average of 4.4mg/l on day 1 to 5.1mg/l on day 2 (Figure 8). These levels remain low however. In Dashwa, livewell DO levels averaged 5.6 mg/l between 1993 and 2007 and only averaged below 5mg/l twice over the 10 days sampled. Even more concerning is the percentage of livewells with low levels of oxygen (below 4mg/l). Although this improved to 20% from almost 50% on Day 1, this is much higher than previous year's results (Figure 8). In previous year's tournaments between 2003 and 2007, the average number of boats with less than 4.0 mg/l dissolved oxygen was only 12%. At dissolved oxygen levels less than 5.0mg/l, bass have been found to have affects related to increase stress and levels below 4.0mg/l begin to result in increased mortality.

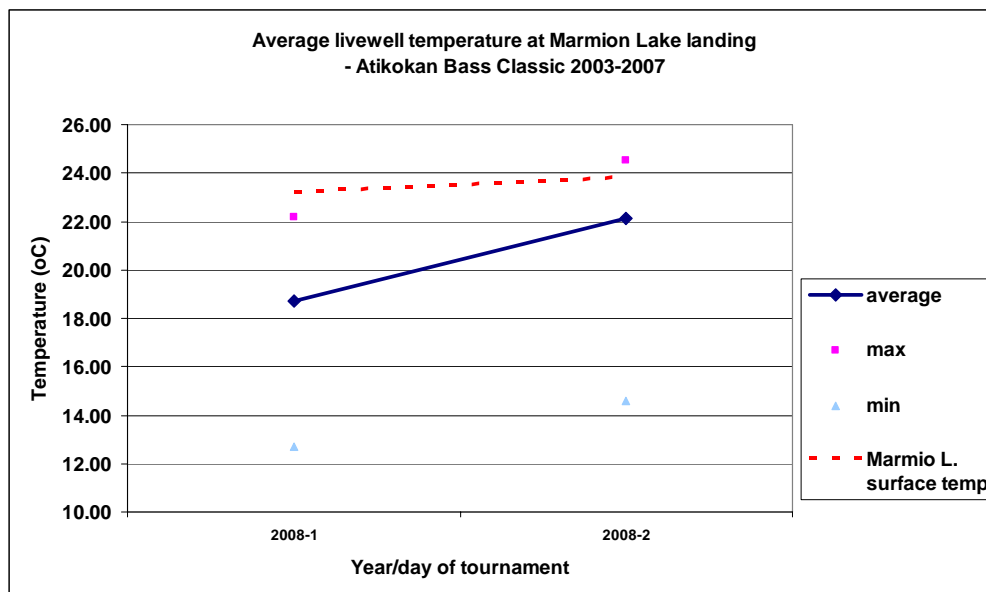


Figure 7. Livewell temperatures at Marmion landing for ABC competitors in 2008.

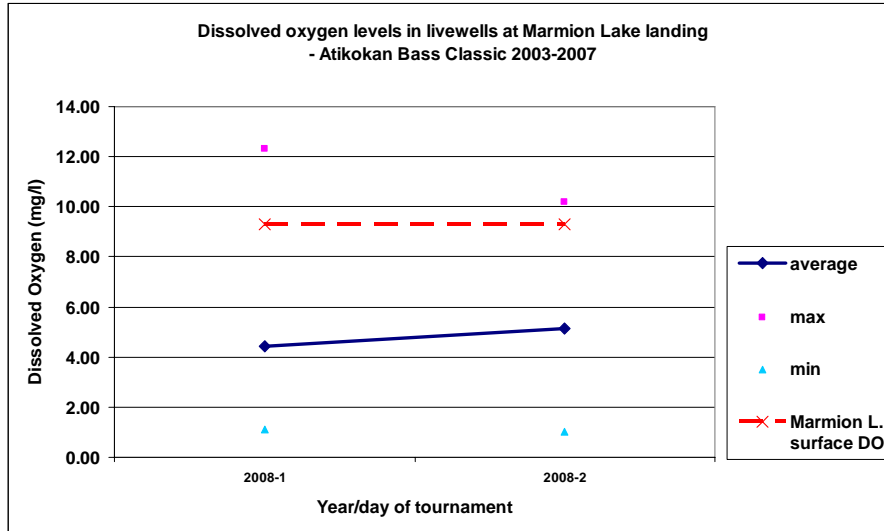


Figure 8. Livewell dissolved oxygen levels at Marmion landing for ABC competitors in 2008

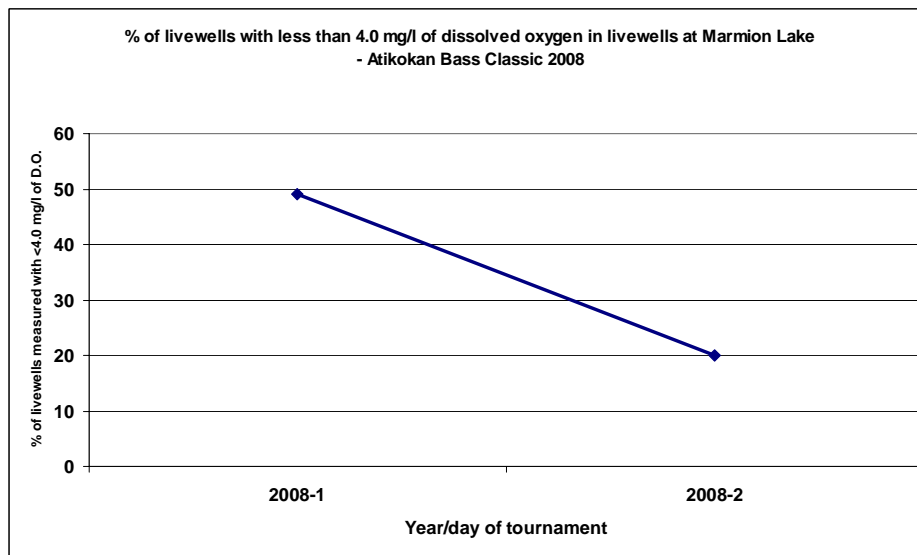


Figure 9. Percent of livewells with dissolved oxygen levels less than 4.0mg/l at Marmion landing for ABC competitors in 2008

### Atikokan Monitoring Station data

The time between having livewell temperature and dissolved oxygen assessed at the Marmion landing and at the Atikokan station averaged 53 minutes on day 1 and declined to 41 minutes on day 2 (Figure 10). There had apparently been an issue on day 1 where boats were removed from the lake but then spent extended amounts of time sitting out of the water. On day 1, 28% of the boats took longer than 1 hr while on day 2, this had declined to only 7%. Travel time between Dashwa and Atikokan between 2004 and 2006 averaged longer at 61 minutes.

Livewell temperatures increased between Marmion and Atikokan about 3°C on both days (Figure 11). Although the travel time was reduced which should have



resulted in less of a temperature change, it may have been offset by the increase in air temperature on day 2. Between 2004 and 2006, livewell temperatures actually decreased about 3°C due to the cooling effect from the addition of ice.

Livewell dissolved oxygen levels declined about 5 mg/l on day one between Marmion Lake and Atikokan and about 3 mg/l on day 2 (Figure 12). Between 2004 and 2006, the average decline in dissolved oxygen levels between Dashwa Lake and Atikokan was 1.9 mg/l and never exceeded 2.5 mg/l. The result of this is that a high proportion of livewells had dissolved oxygen levels less than 4.0mg/l (69% on day and 33% on day 2). For comparison, the percentage of livewells with less than 4.0mg/l between 2004 and 2006 was only 5% and for the last year measured (2006), no livewells were found with dissolved oxygen levels below 4.0 mg/l.

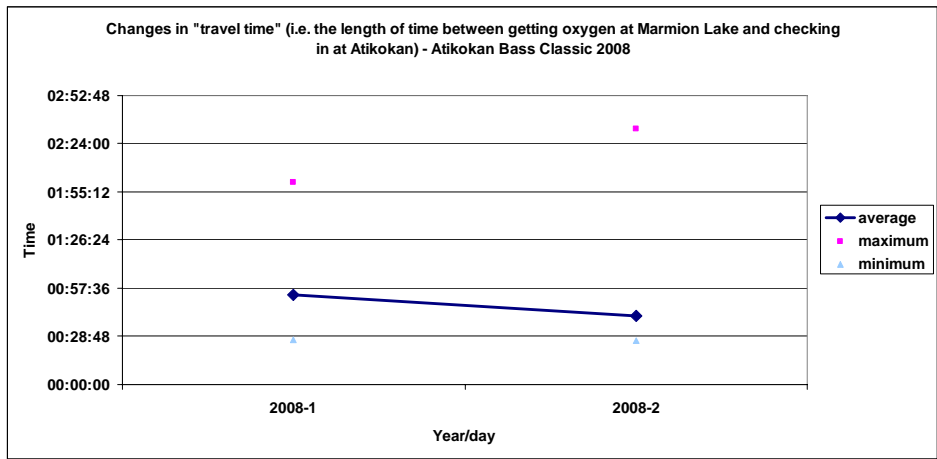


Figure 10. Travel time between having livewell water quality measured at Marmion landing and Atikokan for ABC competitors – 2008.

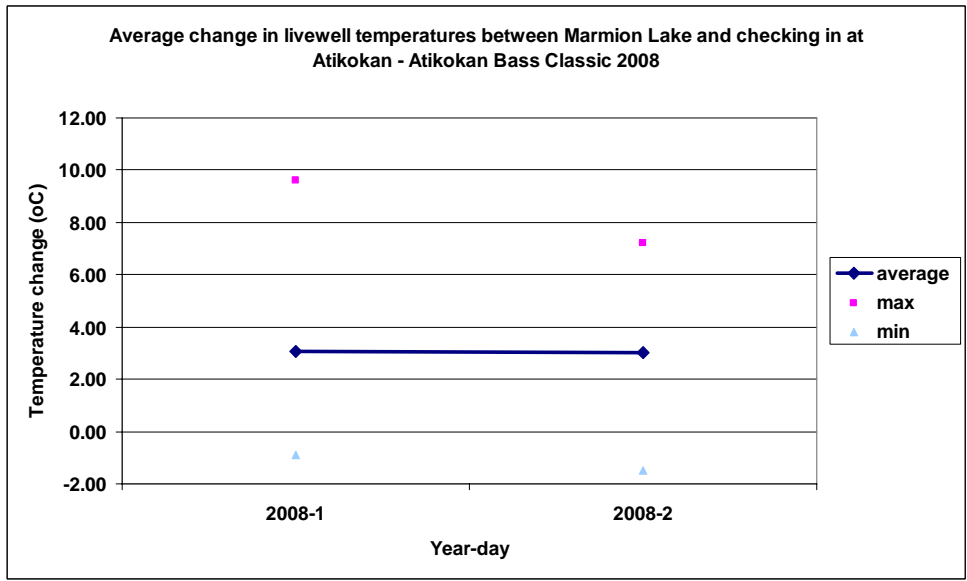


Figure 11. Change in livewell temperatures measured at Marmion landing and Atikokan for ABC competitors – 2008.

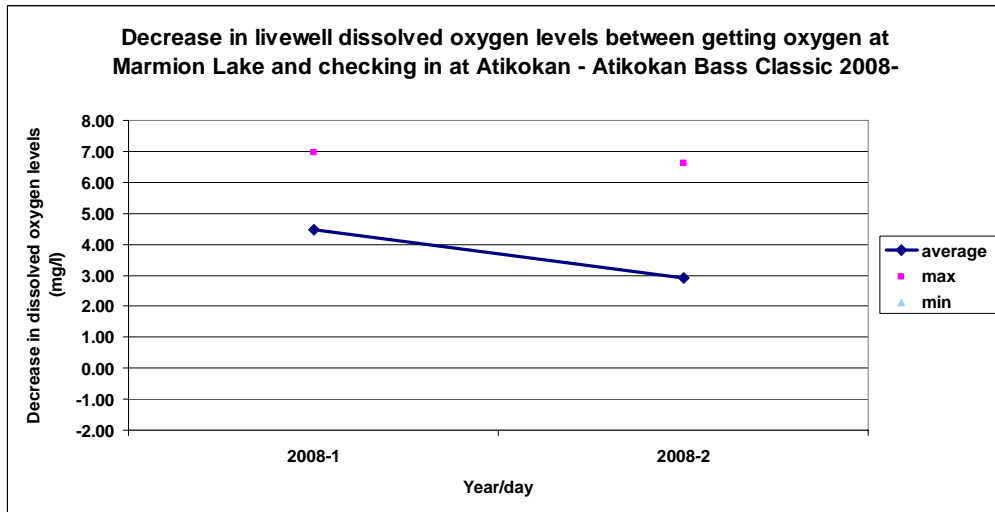


Figure 12. Decrease in oxygen levels measured at Marmion landing and Atikokan for ABC competitors – 2008.

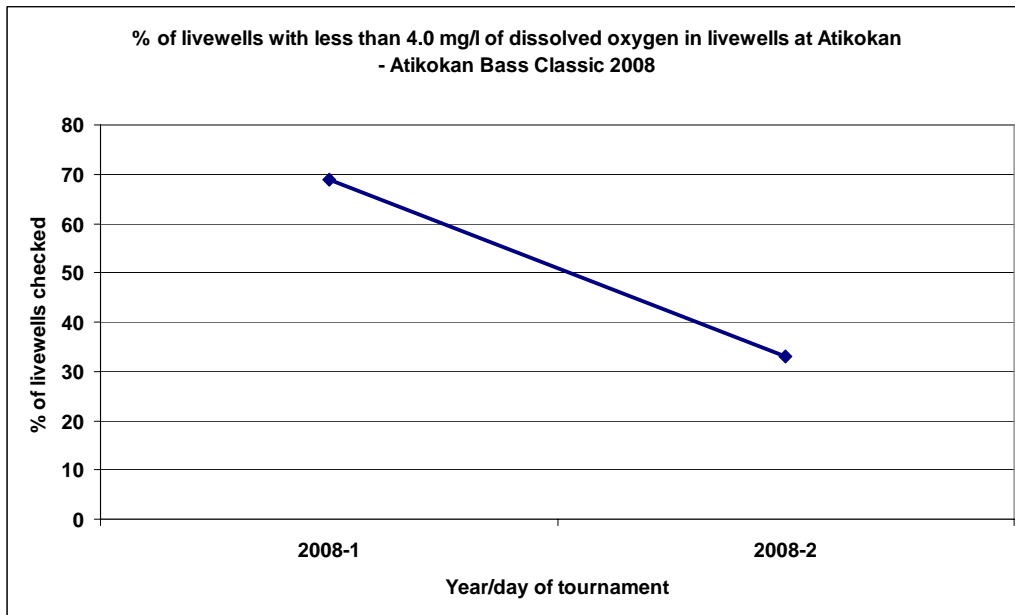


Figure 13. Percent of livewells with dissolved oxygen levels less than 4.0mg/l at Atikokan for ABC competitors in 2008.

The result of the increased levels of temperature and oxygen stress was higher levels of mortality at the 2008 tournament compared to previous years. Observed mortality prior to release was ~7% on day 1 (449 bass weighed) and ~4.5% on day 2 (438 bass weighed) (Figure 14). Previous mortality levels between 2003 and 2007 averaged ~2% and appeared to be mainly associated with hooking injuries. A study to look at mortality after release in 2003 found that

no fish had died in the 48 hrs after release. In 2008, the bass were in noticeably poor condition on Day 1 (bunched at surface in transfer tank, etc) and it can be expected that post release mortality would be high (several reports of large dead bass near the landing were received at the Atikokan MNR office in the week following the tournament). Bass were in noticeably better condition on day 2 but post release mortality remains unknown.

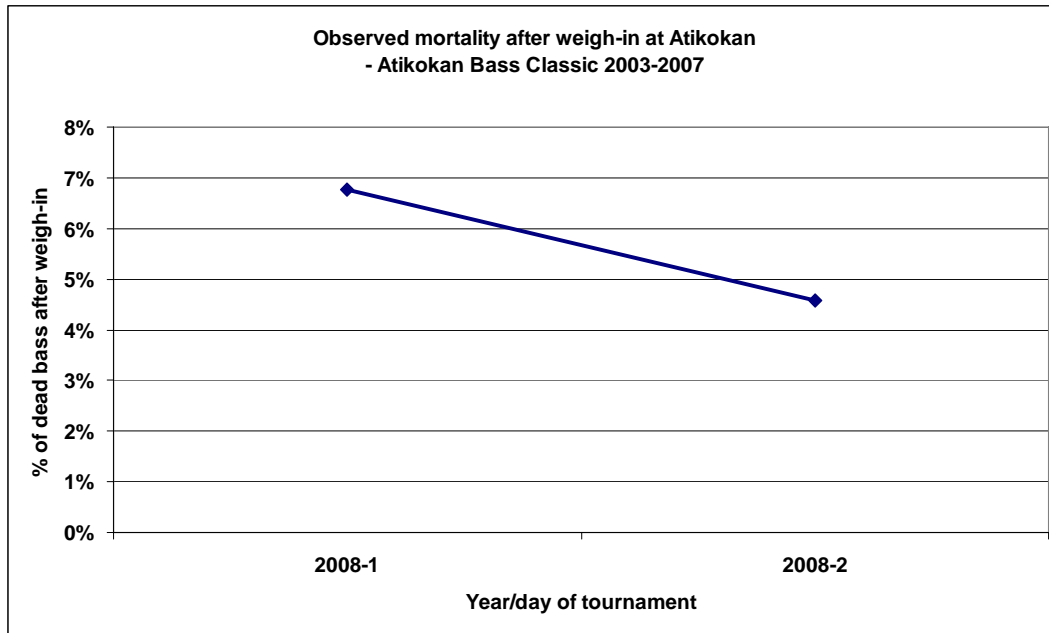


Figure 14. Observed smallmouth bass mortality prior to release – Atikokan Bass Classic 2008.

## **Conclusions and Recommendations**

As expected, moving the tournament to Marmion resulted in more and larger bass being caught. However, having more and larger bass in the same sized livewells increased issues with bass health and survival.

### Recommendations

- MNR to conduct tag recapture study to look at bass movement following release (similar to previous study on Dashwa/Crowrock/Turtle in 2000).
- MNR and ABC to conduct a delayed mortality study to look at longer term (48hr) survival of bass after release.
- suggestions for tournaments organizers to improve bass survival
  - o Decrease time between boats leaving lake and being weighed (i.e. minimum amount of times boats are sitting on trailers not moving)
  - o Look at ways of insuring adequate volume of water for bass while being moved (provide anglers with containers of adequate volumes of oxygenated water?)
  - o Continue monitoring temperature and oxygen levels and adding oxygen to livewells at landing and at town
  - o Increased education to participants about the importance of maintaining the maximum volume of fresh oxygenated water in their livewells.
  - o Investigate use of Shimano release equipment available from Fort Frances Bass Classic.