

## Slot Size Limits in Alberta

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### The Dilemma of Alberta's Fisheries

Alberta's lakes have low productivity, but heavy angling pressure; typically, our lakes can only sustain a harvest of about one (1) walleye or pike per hectare, but we commonly have angling pressure of three (3) anglers per hectare. Other jurisdictions such as Saskatchewan or Manitoba may have angling regulations that work well under their own conditions of productivity and angling pressure. Alberta's regulations, however, must sustain the harvest within the limits of our lakes. The math is brutally simple; to be sustainable, two out of three Alberta anglers must go home fishless.

What regulation achieves that result, in a fair manner to all anglers? We've tried minimum size limits, slot limits and lottery tag limits. All have pros and cons, and none are the magic bullet.

### Slot Limit Background

Slot size limits are somewhat unusual in fisheries management, compared to the more common minimum size limit. Slot size limits refer to size limits that allow anglers to either to kill a defined size range of fish (called a harvest slot), or protect a defined size of fish from harvest (called a protected slot). This is in contrast to minimum size limits that protect all fish under the defined size.

The idea of slot limits, however, captivates anglers and biologists alike. It seems like a regulation designed to give the best of both worlds; let anglers take small fish home for the table, but protect big spawners so you have a sustainable fishery with a chance for trophies. Sounds great! Only one problem...they seldom work.

The problem first becomes obvious if you do the simple accounting of fish production and angler harvest. If angler pressure is high enough for overharvest (and we wouldn't impose a regulation if it wasn't), then allowing the harvest of small fish will likely result in too few fish surviving to become big fish. That is precisely what we have discovered at repeated experimental trials of slot limits in Alberta.

### The Alberta Walleye Slot Limit Experience

Slot size limits were first implemented at three Alberta walleye lakes during the 1990s; Touchwood, Siebert, and Spencer lakes. These were protected slot limits, designed to reduce the harvest of the critical medium-sized spawning walleye, yet allow anglers to harvest a few small fish for eating, and perhaps take a big walleye as a trophy.

The slot limits failed to restore these walleye fisheries. Fishing pressure on the small fish was heavy, and illegal harvest of the protected-size walleye by anglers was too high. Anglers tended to cheat on both the small end of the protected size range (e.g., we heard these excuses over and over: "I think this fish might be a little big, but it was close") and on the large end ("Well, this fish was almost a legal size"). The result was that, on average, 29% of the fish that should have been released were illegally kept. This was twice the level of illegal harvest that we saw at lakes with minimum size limits.

The consequences of heavy harvest of small fish and illegal harvest of protected fish were stark; all 3 lakes failed to recover. Anglers lost fishing opportunities because the fisheries stayed collapsed or poor.

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An important additional finding of this study was that the rate of illegal harvest was highest when fishing was poor. Basically, if anglers are catching very few fish, many will cheat in order to keep one.

Additional studies showed that more enforcement was not a solution; anglers were very aware that even with many officer visits to a lake, the chance of getting caught was slim. Angling (like hunting) is a sport where ethics, not fear of enforcement, is a major factor in governing the actions of people.

## **Slot Limits for Pike Fisheries**

During the past few years (2009 – 2014), slot limits were tried for managing a few Alberta pike fisheries. Again, these slot limits failed to restore or even maintain these fisheries. At Amisk Lake, the standard 63 cm minimum size limit imposed in 1999 had recovered the long-collapsed pike fishery into a high-catch rate, popular fishery, but one composed of many small pike and few big fish. A pretty normal response.

A new experimental slot limit implemented in 2010 was expected to provide harvest opportunities for the abundant small pike but at the same time protect the big spawners. It failed. Anglers harvested so many small pike that even fewer survived to spawn and the fishery collapsed to worse than the terrible fishing in the bad old days, when there was no size limit and the bag limit was 10 pike per day! Pike were overfished to such a severely low level that it was necessary to implement full catch-and-release regulations.

An experimental protected slot limit on pike at Fork Lake (implemented in 2010) seems to be having a similar effect. Within the first 3 years, the heavy harvest of small pike caused catch rates to decline by 40%, but with no beneficial increases in larger fish.

## **Summary**

Slot limits are consistently popular because they seem to offer great promise; let anglers harvest small fish and simultaneously create quality fisheries for protected big fish. Unfortunately, it's often a hollow promise. It sometimes works in jurisdictions with warmer water and fast-growing fish, but with Alberta's combination of naturally low productivity and increasingly high angler pressure, however, the reality is that slot limits simply don't succeed here. Overharvest is inevitable, our fisheries decline, and anglers lose fishing opportunities.

Fortunately, there is an alternate solution; keep harvests at sustainable levels. In Alberta, this has been proven, over and over again, to be easily achievable with simple minimum size limits. Minimum size limits protect fish to grow to adult sizes and let them spawn a few times. Once they've made their contribution to the sustainability of the fishery, they then can be harvested. Anglers get opportunities to catch (and release) lots of fish, and have the chance to take home a larger fish, if lucky. Not all anglers accept the reality of catching lots, but not being able to keep fish. That attitude is getting more uncommon, but is still a big issue with some folks. No single regulation can satisfy everyone.

For now, minimum size limits are the main angling regulations in Alberta. They are simple, work very well for Alberta's biological situation, and have good compliance by anglers. The proof is in the pudding; using minimum size limits, many of Alberta's walleye and pike fisheries have recovered from being poor quality, collapsed fisheries during the 1970s, 80s, and 90s, to now becoming some of the best sport fisheries in Canada. This success has created huge new opportunities for anglers to go to local lakes and experience wonderful catches of fish that even our grandparents would have seldom experienced.

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## **Background Studies**

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