

Proposed Regulation: Allow motor trolling on all inland waters statewide with up to three hooks, baits or lures per angler and repeal the definition of “position fishing”.

Current Regulation: "Motor trolling" means fishing by trailing a lure or bait that may be used to attract or catch fish from a boat propelled by a means other than drifting or rowing. Currently, some amount of motor trolling is specifically allowed in **64 counties**. Motor trolling is allowed on all waters in **19 counties** throughout the state (Ashland, Barron, Bayfield, Burnett, Dane, Douglas, Grant, Iowa, Lafayette, Menominee, Polk, Price, Racine, Richland, Rusk, Taylor, Walworth, Washburn, and Waukesha). In **45 counties**, one or more specifically named waters (105 total) are open to motor trolling; and in **8 counties** (Green, Iron, Kewaunee, Manitowoc, Milwaukee, Monroe, Ozaukee, and Vilas), all waters are closed to motor trolling, although in 6 of these 8 counties (Green, Kewaunee, Manitowoc, Milwaukee, Monroe, and Ozaukee) there are only about 25 lakes with public boat access. “Row trolling” is allowed in all waters statewide, as is “position fishing”, which allows the angler to fish from a boat in a manner where the fishing line extends vertically into the water while the boat is maneuvered by the use of a motor. This proposal would eliminate the need to define the method of “position fishing”; it would still be legal in all waters under the definition of trolling.

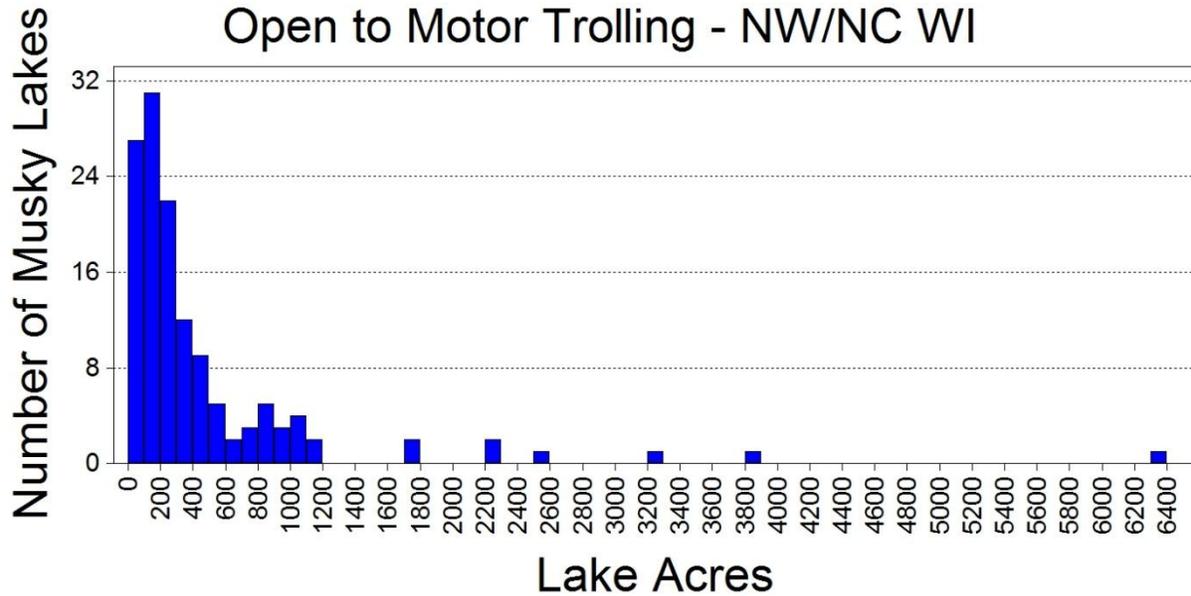
Motor trolling on the inland waters of Wisconsin. Trolling is allowed on one or more waters in 64 counties (the number of waters open to trolling is shown; "A" means "All Waters").



Problem: Restrictions on motor trolling are inconsistently applied across the inland waters of Wisconsin (see figure, above). Differences in where motor trolling is either allowed or prohibited have been based entirely on popular opinion. There is no biological justification for this inconsistency from lake-to-lake or county-to-county; angling success (catch rates) and harvest of muskellunge, walleye or northern pike do not differ between casting and trolling (Beard 1993). Also, a variety of interpretations still exist among anglers regarding the differences between “motor trolling” and “position fishing”. For example, the practice of drifting with live bait and occasionally repositioning the boat, usually with an electric motor (often while also casting and retrieving an artificial lure), is specifically prohibited, yet many anglers believe this method is consistent with the definition of “position fishing”.

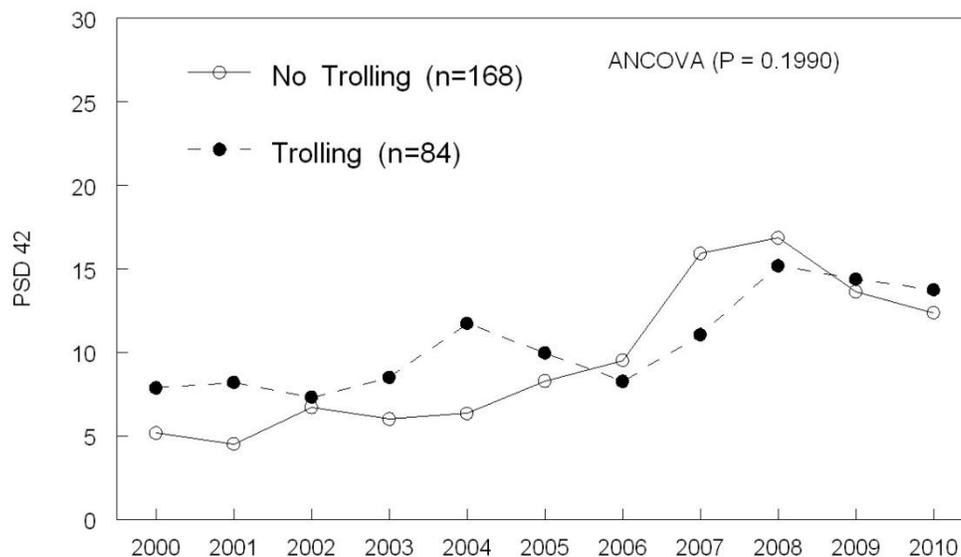
Justification: This proposal will greatly simplify the regulations related to “trolling” and “position fishing” by allowing consistent angling methods on all waters statewide and, ultimately, will not impact gamefish populations in any way. In 2012, attendees of the Spring Fish and Wildlife Hearings voted in favor of a similar Conservation Congress advisory question to allow motor trolling statewide, with 1,928 people in favor and 1,576 people opposed. There are two primary concerns related to motor trolling. First, that trolling will result in more conflicts among anglers on small lakes. And, second, that trolling negatively impacts the size-structure of fish populations (mainly, muskellunge). We have had no reports of user conflicts from the considerable number of waters already open to motor trolling, even though most are less than 400 acres in size (see Figure, below). In a recent (2010-11) statewide mail survey, 64% of musky anglers reported doing some amount of trolling for muskellunge in Wisconsin during 2010. And, 91% indicated they would do some amount of trolling, if it were legalized statewide.

Size Distribution of Musky Lakes Open to Motor Trolling - NW/NC WI



In order to examine concerns regarding the potential impact of motor trolling on muskellunge size-structure, we compared the PSD42 (proportion of 42" and larger fish) in lakes with and without motor trolling from 2000 to 2010. We calculated the average PSD42 each year for lakes with and without trolling, transformed the data using [arcsine (square root (PSD42))], and conducted an Analysis of Covariance, using general linear models techniques, with year and lake area (acres) as covariates. There was no significant difference in size-structure between lakes with and without trolling, after accounting for lake size and yearly changes in PSD42 ($P=0.1990$). There was a significant year effect ($P=0.000$), indicating that size-structure has improved to the same degree in lakes with and without trolling since 2000. Muskellunge size-structure is very similar among waters, with or without motor trolling.

Muskellunge Size-Structure (PSD42) in Wisconsin Waters, Spring Fyke Netting, 2000-2010 (n=252 samples)



We also examined 189 angler creel surveys on classified musky fisheries from 1998 to 2011, to evaluate potential differences in angler catch rates of muskellunge and average lengths of harvested fish. We conducted a Wilcoxon Rank Sum (WRS) procedure to compare angler catch rates between lakes with and without motor trolling. We also conducted a general linear models (GLM) procedure to compare the average lengths of harvested muskellunge between lakes with and without trolling. With this data set, there were no year-effects, indicating the catch rates and average lengths have not changed substantially over time. We found no significant differences in angler catch rates or the average length of kept muskies in lakes with and without trolling:

	Trolling (NW WI)	No Trolling (NE WI)	Test	Probability
Number of surveys	45	144		
Mean Catch Rate (muskies/hour)	0.0327	0.0393	WRS	P=0.0983
Number of fish measured	23	58		
Mean Length Harvested Muskies	38.1"	39.1"	GLM	P=0.5295

To further examine potential impacts of motor trolling on muskellunge in Wisconsin, we queried the Muskies, Inc., database for "trophy" muskellunge (48" and larger) registered from 1998 to 2010 in WI waters. The top 28 waters (5 or more fish reported) accounted for 73% of the trophy fish registered over the period. Of these 28 waters, trolling has been allowed on 14 and prohibited on 14. We ranked the top 28 waters by the total number of trophy fish registered. There was no significant difference in the number of trophy fish registered between these two groups of waters with and without trolling (Wilcoxon Rank Sum; P=0.9262). The mean rank of waters with trolling was 13.3, versus 13.7 for waters with no trolling. There were 215 trophy fish caught in the top 14 waters with trolling; 202 fish were caught in the top 14 waters where trolling was prohibited. Lake size was not a factor in this analysis (see table, below).

The Top 28 waters (5 or more trophy fish registered by Muskies Inc., members from Wisconsin waters over the period 1998-2010), showing numerical rank – Water Body Name (total number of fish registered).

Top Waters with Trolling	Acres	Top Waters without Trolling	Acres
2 – Madison Chain (36)	5,354	1 - WI River – Vilas and Oneida (47)	--
3 – WI River - Lincoln, Marathon, Portage, Wood, Adams (33)	--	4 – North Twin Chain (32)	3,430
4 – Pewaukee (32)	2,493	6 – Chippewa Flowage (30)	15,300
7 – Holcombe Flowage (29)	3,670	9 – Kentuck (17)	957
8 – Lake Wissota (19)	6,300	11 – Clear (12)	846
10 – Namekagon (15)	3,227	12 – Bolger (11)	119
14 – Lac Courte Oreilles (10)	5,039	12 – Lac Vieux Desert (11)	2,853
15 – Chippewa River – Eau Claire and Chippewa Counties (8)	--	15 – Manitowish Chain (8)	4,106
18 – Apple River Flowage (6)	639	17 – Flambeau Chain (7)	9,339
18 – Cornell Flowage (6)	836	18 – Eagle River Chain (6)	3,564
18 Eau Claire River (6)	--	18 – Three Lakes Chain (6)	7,082
23 – Bone Lake (5)	1,781	23 – Big St. Germain (5)	1,617
23 – Dairyland Flowage (5)	1,745	23 – Minocqua (5)	1,360
23 – Okauchee (5)	1,187	23 – Trout (5)	3,816
Mean Rank = 13.3		Mean Rank = 13.7	
Total trophy fish registered = 215		Total trophy fish registered = 202	
Average size (acres)	2,934	Average size (acres)	3,466

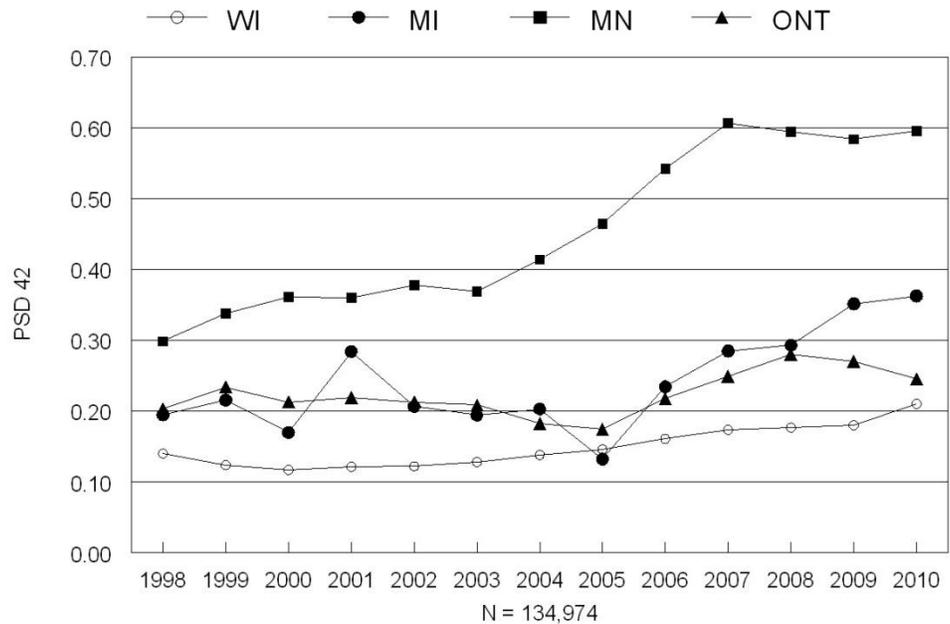
Beyond Wisconsin, motor trolling has been allowed for decades in Michigan (3-lines), Minnesota (1-line) and Ontario (1-line), all considered top destinations for muskellunge fishing. Some musky anglers believe these locations may have better musky size-structure than Wisconsin populations, even though they allow motor trolling. We

compared an index of size-structure (PSD42) for all muskies registered by Muskies, Inc., members in MN, MI, WI and ONT from 1998 to 2010 (134,974 muskies; See Figure, right). There is no evidence to suggest that motor trolling has suppressed muskellunge size-structure in other states/provinces where this method is allowed.

The inconsistent regulation of “motor trolling” across the state has had no apparent benefit on Wisconsin muskellunge fisheries, in terms of population size-structure, angler catch rates, or the average size

of fish kept. Musky fisheries are no different in waters with or without trolling. Allowing more consistent angling methods on all waters statewide will simplify regulations, will have no impact on muskellunge fishing, and is unlikely to influence the level of user conflicts, given our experience with many other waters currently open to motor trolling. Restrictive seasons, size-limits and bag limits are in place to protect and sustain muskellunge resources in Wisconsin. There is no evidence to suggest that motor trolling has been detrimental to muskellunge size-structure or abundance in Wisconsin and there is no reason to believe that allowing trolling on waters where it is currently prohibited would result in any change in abundance or size-structure of those populations.

Size-structure (PSD42) of Muskellunge Registered by Muskies, Inc., Members, 1998 - 2010

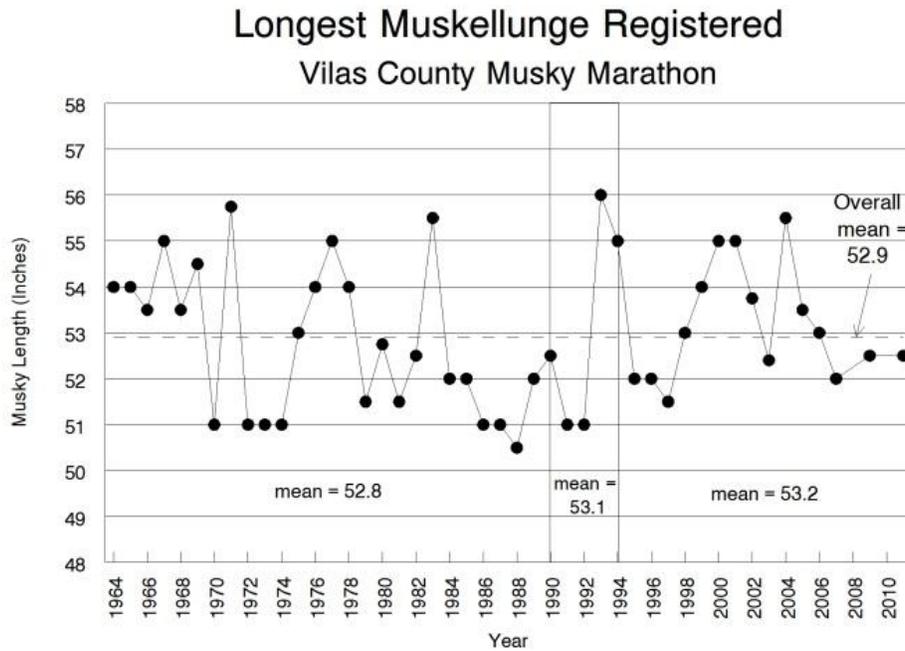


Muskellunge Management Team
Wisconsin Department of Natural Resources

September 2012

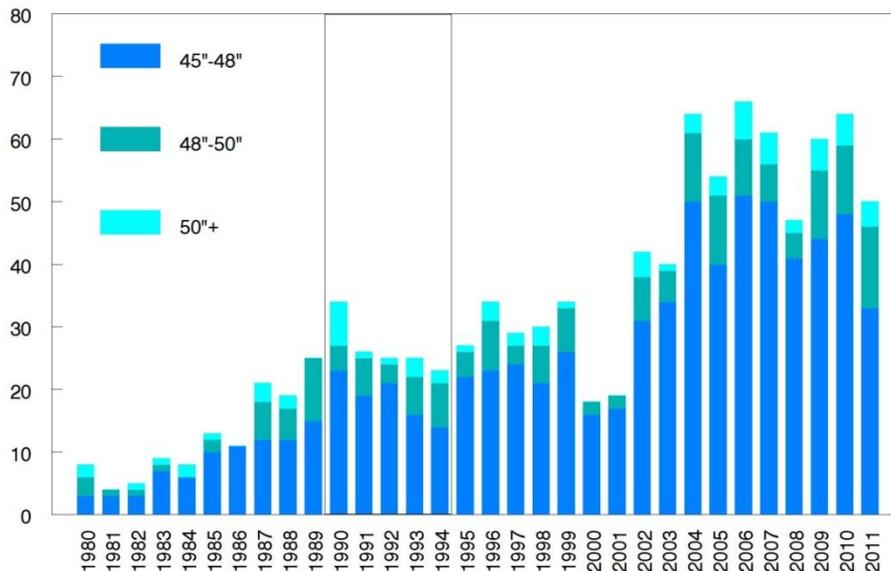
Common Questions and Answers:

Didn't backtrolling in the 1990s impact musky size-structure in Vilas County? Back-trolling was allowed from 1990-1994. Some people believe that this caused irreparable harm to musky populations in Vilas County. However, the average length of the largest fish registered in the Vilas County musky marathon was larger after back-trolling versus before.



Also, the number of fish 45" (registered by Muskies, Inc., members) has continued to increase. The years immediately following back-trolling (1995-1999) showed no impact.

Musky Size-Structure in Vilas County Waters Muskies Inc., member registration



Won't opening more waters to trolling accelerate the spread of undesirable aquatic invasive species, such as Eurasian water-milfoil? There is no evidence to support the notion that trolling results in more rapid expansion of Eurasian water-milfoil (EWM) among the waters of Wisconsin. While boating, in general, surely does aid in the transport and spread of aquatic plants, trolling alone does not explain the patterns in the EWM distribution we see across the state. Fortunately, we already have considerable experience with trolling on all sizes of lakes in many parts of the state.

In a recent study, we found no biological or statistical relationship between the number of waters open to trolling within a county and the number of waters that are infested with EWM. Among all 72 counties, the proportion of waters infested with EWM ranges from 0 to 84%. We have 19 counties in Wisconsin where all waters are open to trolling, however, the proportion of waters infested with EWM in those 19 counties ranged from 0 to 84%. Even though all waters were open to trolling, on average, only 16% of waters were infested. Likewise, in 8 counties with no waters open to trolling, the proportion of waters infested with EWM ranged from 0 to 80%; even though no waters were open to trolling, on average, 16% of waters were infested. In 44 counties with some (but not all) waters open to trolling (0.4% to 23%), the proportion of waters infested with EWM ranged from 0 to 65%; on average, 14% of waters were infested. In this study, we found no biologically or statistically significant relationship between the proportion of waters open to trolling and the proportion of waters infested with EWM among Wisconsin counties. The correlation coefficient, "r", was 0.005, which is extremely weak (the strongest correlation would have an "r" value of "+1.000" or "-1.000", with "0" indicating no correlation). The "P" value (P=0.9698) indicates the probability that "r" differs significantly from "0". In this study, it was quite clear that "r" does not differ from "0" (no correlation).

Relationship between % of waters with trolling and % of waters with EWM, by County

