

Effective Release Techniques for Muskellunge



The muskellunge (*Esox masquinongy*) or muskie as it is commonly known, is a fast growing predator and highly prized trophy fish. The muskie is closely related to the northern pike (*Esox lucius*) which leads some inexperienced anglers to mistake the two since their shapes are nearly identical.

Colouration is probably the easiest way to separate the species. The colour of the muskie is variable, ranging from silver-green to dark brown, but is consistent with dark markings on a light background. In contrast, the northern pike has light markings on a dark background. Muskies have a pointed tail and angular fins; the pike's tail and fins are rounded. Muskies have more scales on their cheeks and more sub-mandibular pores than pike.



Muskellunge



Northern Pike

Comparisons of colouration, markings, fins and tail of muskie and pike.
(courtesy of Muskies Canada)

Distribution

Muskellunge range extends from southern Manitoba, east to Quebec and Vermont, and south to Tennessee and Minnesota. There are a number of waterbodies in Ontario that have potential to produce trophy size muskies, including Georgian Bay, French River, Lac Seul and Lake of the Woods.



Map of muskellunge waters in Ontario.
(from Mandrak and Crossman 1992)

Biology

Muskellunge spawn in spring in shallow bays with moderate to heavy vegetation. Risk of mortality from angling is high at this time since they do not actively feed, and energy reserves are low, (Table 1).

Spawning can last for several days, but usually no longer than a week. Females are fractional spawners, visiting sites several times during spawning season, with as much as six weeks between visits. Hatching occurs eight to fourteen days after final eggs are deposited. The young remain dormant in the vegetation for about another ten days. Young muskies then become active and start feeding. Growth is rapid and the fingerlings may reach 15 cm (6") in length during the first 10 weeks. Females grow faster, larger and live longer than males. Sexual maturity starts around three to five years for both sexes.

TABLE 1. Annual Muskellunge Activity and Angling Stress Risk.

SEASON	PREFERRED WATER TEMPERATURE	ACTIVITY	MORTALITY RISK FROM ANGLING
Spring	0-17°C (32-63°F)	feeding and breeding	highest
pre-spawn (ice out)	0-9°C (32-48°F)	feed to replenish lost energy reserves move to spawning areas	hooking mortality
spawn	10-15°C (49-59°F)	breeding in shallow weedy bays little or no feeding	hooking and handling mortality
post-spawn	15-17°C (59-63°F)	increased feeding	hooking and handling
Summer	increasing above 18°C may exceed 25°C	feeding may seek cool, weedy waters at higher temperatures	moderate to high hooking and handling similar to heat stress
Autumn	decreasing below seasonal highs	feeding to fatten for upcoming winter	lowest
early	below 25°C	aggressive feeding	
late	below 11°C	continue to feed in good physical condition	

History of Size Limits in Ontario

Size limits are determined by growth and reproduction potential of muskie in waters across their range. Size limits have been used as a tool to manage muskie in Ontario since 1949. As biological knowledge of muskie waters improved, the number of minimum size limits increased. Between 1949 and 1985, as many as three different size limits (71.1cm (28 inches) to 91.5cm (36 inches) total length) were used to manage provincial muskie populations. In 1998, there were nine different minimum size limits (86cm (34 inches) to 112 cm (44 inches) total length) for specific muskie waters in Ontario.

Not only has the use of size limits improved these fisheries, but catch and release has also been a big factor. While

minimum size limits require anglers to release smaller fish, anglers today are practicing catch and release more than ever before.

Improved populations of many game fish in Ontario can be attributed in part to selective harvest practices.

Tips and Tools for Muskie Anglers

Catch and release can be a valuable tool in the management of muskie fisheries. However, muskies are very sensitive to stress from handling, and it is important that anglers practice proper techniques. Here are some tips you can use to ensure that the fish you return to the water will live to be caught another day.

Catching a Muskie

The type of equipment that is used to catch a muskie can greatly affect its chance of surviving after release.

- **Use heavier tackle** when fishing for muskie (not less than 20 pound test line). Since fish can be reeled in more quickly with heavy tackle, they will experience less stress than fish caught on light tackle.
- **Keep stressful fighting time to a minimum.**

Handling/ Landing a Muskie

Proper handling is critical when bringing a fish into the boat to take a picture or for weighing and measuring.

- **Prepare your measuring and photo equipment** (cradle, tape, scale, camera) **BE READY AHEAD OF TIME!**
- The **less time a fish** is out of the water, the **greater its chance of surviving.**
- Bring the fish alongside the boat;
- Wait until the fish is calm;
- **Use a large net or cradle made from soft woven material.**
- Net the fish successfully in the water;(or slide the fish into a cradle);
- **If possible, leave the fish in the water at all times..**
- **Measure length** with a floating measuring tape or stick numbered from either end, so the fish can be measured, no matter which way its head is pointing.
- **Measure weight** by hooking your scale to the mesh of the net (or into the ropes of a cradle);



(OMNR photo)

Muskie in a cradle in water beside boat

- **Quickly** raise the cradle and the fish out of the water to read the scale;
- **Weigh** the cradle (either before netting the fish, or after releasing it); and subtract its weight from the total weight of the fish and cradle;

If you need to bring the fish into the boat Lift straight up, bringing the fish up and over the gunwale and into the boat.

Lay the fish gently on a non-slip surface that will not damage the protective slime. **DO NOT** drag it over the gunwale.

If an exact weight is not important, you can use the following table (courtesy of Muskies Canada): Measure the length and girth of your fish; and the intersection point on the table is the weight in pounds (divide by 2.2 to convert to kilograms).

		Girth in Inches										
		12	14	16	18	20	22	24	26	28	30	32
Length in Inches	34	6	8	11	14	17	21	24	29	33	38	44
	36	6	9	12	15	18	22	26	30	35	41	46
	38	7	9	12	15	19	23	27	32	37	43	49
	40	7	10	13	16	20	24	29	34	39	45	51
	42	8	10	13	17	21	25	30	35	41	47	54
	44	8	11	14	18	22	27	32	37	43	50	56
	46	8	11	15	19	23	28	33	39	45	52	59
	48	9	12	15	19	24	29	35	41	47	54	61
	50	9	12	16	20	25	30	36	42	49	56	64
	52	9	13	17	21	26	31	37	44	51	59	67
	54	10	13	17	22	27	33	39	46	53	61	69
	56	10	14	18	23	28	34	40	47	55	63	72
	58	10	14	19	23	29	35	42	49	57	65	74
	60	11	15	19	24	30	36	43	51	59	68	77
	62	11	15	20	25	31	38	45	52	61	70	79
	64	12	16	20	26	32	39	46	54	63	72	82

LIFT the fish properly:

- **Wear wool gloves** for better grip, and to prevent removal of muskie's protective slime.
- When the muskie is laying in the water and has calmed down, slip your hand along the gill plate towards the head and hold tightly.
- Slide your other hand under the fish's belly, towards the anal fin and grab the tail.
- In one motion lift the fish straight up holding it in a horizontal position.
- Always give the fish as much support as possible.
- **Take 2-3 pictures as quickly as possible;**
- When you lift a muskie out of the water, **take a deep breath and hold it. When you need another one, so does the muskie!**



(Muskies Canada photo)

The right way to hold a muskie.

- **DO NOT** use a Gaff hook for lifting or landing a muskie. These flesh – piercing tools **MUST NOT BE USED** if the fish is to be released alive.

DO NOT hold the fish vertically to take its picture. This can damage the fish's jaw, ligaments and connective tissues between the head and body. Vertebrae along the fish's back can be strained from the weight of its body. Internal organs can also be damaged from this unnatural position.



(photo by Gord Ellis)

Angler showing reviving techniques.



(photo by Stan Poth)

If you want to live release a muskie, do not hold it like this.

DO NOT touch its gills.

Reviving/Releasing a Muskie

The key to successfully releasing a muskie is to minimize 'handling time' and to revive it properly.

- Try to release the fish while it is on the surface by using a pair of heavy, long nose pliers or durable bolt cutters and jaw spreaders to remove the hook.

Proper revival techniques include:

- Holding the fish in the water;
- Grasp the tail with one hand;
- Slowly move the fish side to side while holding the tail. The fish's body will wave back and forth in a series of 'S' patterns. This motion will help to remove lactic acid from muscles while gently passing water over the gills
- **Do not let a muskie swim away too early;**
- Ensure it is breathing and can swim away under its own power;
- Muskie have a high center of gravity and, if released too early may sink to the bottom, turn over on their backs and die;
- **Release the fish in shallow water** where they can reach a suitable recovery area quickly.

Summary

In this new era of fishing, anglers are becoming more aware of the role they can play in helping to manage quality fisheries. Catch and release has become one of the most popular voluntary techniques that muskie anglers can practice today. Numerous studies show that it does work. The successful release of fish depends on the time of year, water temperature and proper handling techniques.

- **ALWAYS REMEMBER**, if a fish is not handled and released properly, the chance of it dying increases dramatically. Both the effort and the positive effect that catch and release has would be nullified.

Muskies are special fish. One of the greatest thrills for muskie anglers is to successfully release a fish and know that they, or another angler will have a chance to catch that same fish again. They also know that the fish will live to spawn and produce future generations, ensuring angling thrills for years to come. Hopefully, these tips will help you to join the ranks of successful catch and release muskie anglers.



(Muskie Canada photo)

A happy angler holding a muskie for a great picture.

The Cleithrum Project

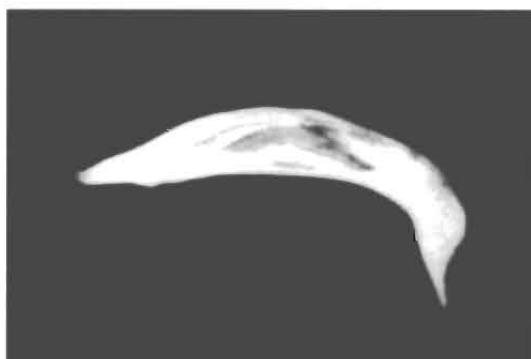
The cleithrum is a bone that is located just back of the gill flap.



(OMNR photo)

Location of cleithrum behind gill flap.

This calcified structure is one of the best tissues for determining the age of a muskie or northern pike. If you find a dead muskie or keep one for mounting, Dr. E.J. Crossman of the Royal Ontario Museum would like to have the cleithrum for scientific study.



(OMNR photo)

Cleithrum after removal.

For more information on the cleithrum project write to:

Dr. E.J. Crossman
Royal Ontario Museum
Dept. of Ichthyology and
Herpetology
100 Queen's Park
Toronto, Ontario M5S 2C6

Or

Contact your nearest Ministry of Natural Resources office for an instruction package.

**For further Information on Muskies,
visit the following websites:**

Ontario Ministry of Natural Resources -
<http://mnrweb.mnr.gov.on.ca/>

Muskies Canada Inc.-
<http://www.trentu.ca/academic/ers/muskie/mc.html>

or contact:

Muskies Canada Sport Fishing and Research Inc.
P.O. Box 814, Station C
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