

Should Lake Michigan Steelhead Bag Limits be Reduced?

Steelhead is a popular fish for both Lake Michigan and river anglers. Acrobatic fight, beautiful silver color, good table fare, and accessibility by boat, surf, pier, and river anglers all contribute to the popularity of steelhead. Their unique life history characteristics provide nearshore and river fishing opportunities throughout most of the year.



Over the past several years, Chinook salmon populations have been heavily affected by reductions in productivity due to invasive quagga and zebra mussels. These mussels filter nutrients out of the lake which are needed to support prey fish, called alewife, that Chinook salmon depend on. More mussels means less prey. Managers have reduced stocking numbers of Chinook salmon in 1999, 2006, and 2013 in an attempt to balance predator with the reduced prey biomass so neither population collapses. These management changes to the fishery have been accompanied by variation in natural reproduction rates of Chinook salmon, which can range from 45 to 70% annually based on adult salmon growth and health, river levels and temperature, and availability of prey for young salmon.

Declines and variation in Chinook salmon abundance may cause Lake Michigan anglers to adjust their fishing techniques to take advantage of the diverse fishery available by targeting other species such as lake trout, coho salmon, brown trout, and steelhead. Potential change in Lake Michigan angler behavior has some pier, shore, and river anglers concerned that higher lake harvest of steelhead may result in lower steelhead runs in our rivers. The question has been asked – “Should bag limits be reduced on Lake Michigan to maintain river runs of steelhead?”

In order to answer that question, first, let’s look at the number of steelhead smolts that are stocked in Lake Michigan tributaries: the Michigan DNR stocks approximately 529,000 steelhead smolts in Michigan waters each year.

Next let’s look at the current regulations on Lake Michigan for trout and salmon:

Minimum Size Limit	Daily Possession or Bag Limit
10 inches	5 total in combination; <u>no more than 3 of any one species</u> ; except up to 5 coho, Chinook, or pink salmon allowed.

Therefore, anglers can only harvest 3 steelhead per day on Lake Michigan.

So what is the harvest impact on steelhead by Great Lakes anglers in Lake Michigan?

Between 2001 and 2014, the average harvest was only 36,990 steelhead harvested per year with a range between 19,104 and 64,442 among all years (Figure 1). The harvest in 2014 was 49,356 steelhead. The highest harvest rates were in 2001 and 2002. The average catch rate

was 0.037 (steelhead per hour) with the catch rate in 2014 of 0.056. These harvest and catch rate estimates are based on creel surveys from various ports and Charter Boat Catch Reports.

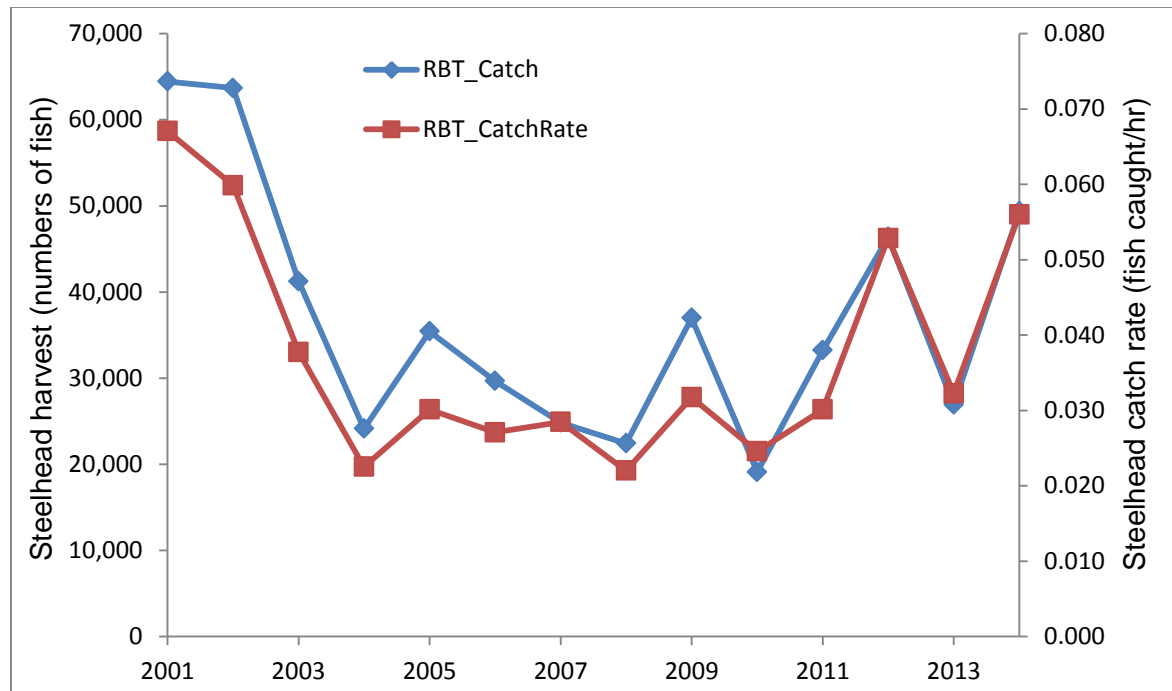


Figure 1. Harvest (Catch) and catch rate (fish/hr) of steelhead in Lake Michigan from 2001 to 2014.

How do these Lake Michigan harvest levels compare to river harvest impacts?

River harvest has been estimated periodically on some larger river systems that connect to Lake Michigan (Table 1). Harvest on the more popular steelhead rivers range from 200 on the Pere Marquette to 23,000 annually on the Muskegon River. Steelhead catch and release rates also continue to increase and range from 20 to 95% of the total catch. Not only is average harvest on rivers higher than Lake Michigan, the total catch (accounting for harvested and released fish) in rivers is four times higher than the average harvest of Lake Michigan.

River	Creel Sample Years	Average Harvested	Average Released	Total Catch
Pere Marquette	2011	200	7,000	7,200
Manistee	1999-2004	17,000	11,000	28,000
Rogue	2004	1,400	1,100	2,500
Grand 6 th Street	2002-2003	6,000	7,000	13,000
Grand (Upper)	2004	1,500	1,000	2,500
Kalamazoo	2004	1,480	477	1,957
St. Joseph	1997-2004	5,500	3,000	8,500
Betsie	2010	1,100	2,500	3,600
Muskegon	1999-2005	23,000	68,000	91,000
Escanaba	2004	25	200	225
Boardman	2005	200	2,000	2,200
All Combined	Various	57,405	103,277	160,682

Can these harvest rates be sustainable in the lake and rivers? The answer is yes, and it is through continuous stocking and natural reproduction of steelhead. On average, Michigan tributaries to Lake Michigan are annually stocked with 529,000 steelhead. Steelhead are stocked as yearlings (7 to 10 inches) and typically have high survival rates. With improved water quality and connectivity to high quality habitat, natural or wild contribution to the lake fishery is about 20-30%. Wild production varies among rivers and is as high as 100% in the Pere Marquette River and 10-20% on systems like the Grand and St. Joseph rivers. Point being that there is a steady supply of steelhead from hatchery systems, an increasing amount of natural reproduction to sustain both our lake and river fisheries and managers believe there are enough steelhead available for both Great Lakes and river anglers if the current regulations are maintained.

Harvest of steelhead is already much higher for river anglers compared to Lake Michigan anglers. Based on the trends in harvest, changing Lake Michigan bag limits for steelhead would have no effect on river returns, harvest, or catch rates. Creel and Charter Boat data will continue to be monitored to evaluate harvest for all species in Lake Michigan. Fisheries managers will continue to stock steelhead, monitor regulations, and protect and enhance river habitats to maintain and enhance steelhead populations for the enjoyment of both lake and river anglers.

There are no recommended changes for steelhead bag limits in Lake Michigan.