

## Salmon Ambassadors

### 2014-2017 Results

The *Salmon Ambassadors* program asked anglers to measure **each and every** Chinook Salmon caught over the course of the fishing season, check each Chinook Salmon for an adipose fin clip, and record this information along with the date and location of each catch. We had 81 volunteers provide useful data sets in at least one of the past four years.

The results presented in this report focus on the contribution of stocked (fin-clipped) and wild (unclipped) Chinook Salmon to ports around Lake Michigan and northern Lake Huron. Volunteers provided useful data on 8,474 Chinook Salmon from complete or nearly complete data sets. Only seven of these fish were missing fin clip data, and seven were missing length data. Most released fish were measured, but volunteers recorded length estimates for 211 fish. Estimated lengths were not used for analyses that required length data, and one data set that included 194 estimated length values was entirely excluded from length-based analyses due to potential bias.

The *Salmon Ambassadors* program is a Michigan Sea Grant initiative developed in coordination with Michigan, Wisconsin, Illinois, and Indiana DNRs, and the U.S. Fish & Wildlife Service. This program would not be possible without the effort of dedicated volunteers from organizations including Michigan Steelhead & Salmon Fishermen's Association and Michigan Charter Boat Association. Special thanks go out to Detroit Area Steelheaders, who provided generous donations to support this program.

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NOTE: The number of fish (N) varies somewhat from one figure or table to another. These N values may also be somewhat different than those reported on fact sheets from previous years. Reasons for this include slight differences in region boundaries and exclusion of data from some fish for certain analyses as noted above.

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# Salmon Ambassadors 2014-2017

Program overivew and volunteer opinions

	2014		2015		2016		2017	
	Salmon Caught	% Wild						
Lake Michigan								
N Wisconsin	321	62%	331	69%	432	59%	245	67%
S Wisconsin	393	57%	35	40%	264	60%	0	NA
Illinois & Indiana	63	67%	0	NA	82	70%	7	86%
N Michigan	1,444	73%	542	75%	699	84%	407	73%
S Michigan	996	71%	749	74%	359	68%	491	75%
N Lake Huron	234	82%	30	30%	159	33%	155	22%

#### **Survey Results**

At the end of each season, volunteers replied to a short survey on fishing satisfaction and other topics:

- Fishing satisfaction was highest in 2017 and lowest in 2015.
- In 2016, 51% of volunteers supported a proposed Lake Michigan stocking cut and 49% opposed.
- Opinions on the stocking cut were not related to knowledge of the best available science, but those opposed to the cut were less likely to trust science.
- Supporters of the stocking cut tended to believe that it would improve predator-prey balance, and those opposed tended to believe that it would harm economic and social conditions in coastal areas.
- Volunteers trusted estimates of % Wild more than estimates of forage fish abundance.

#### **Volunteer Contributions**

In addition to providing data for the *Salmon Ambassadors* program, volunteers contributed 565 heads and snouts of fin-clipped fish for coded-wire tag extraction and 59 stomachs for the Huron-Michigan diet study.

One volunteer even developed an app, the *Great Lakes Angler Diary*, which allowed for electronic data entry in 2017. App users can enter data for species other than Chinook Salmon, and 362 other fish were recorded in 2017.

### **Participation by Region**

Volunteers were most active in certain ports, so fishing effort and catches were not distributed evenly across each region. Some regions also had changes in participation from one year to the next.

#### Lake Michigan

- N Wisconsin Manitowoc to Washington Island Most fish were caught out of Gills Rock or Washington Island.
- S Wisconsin Kenosha to Sheboygan Low participation throughout, particularly in 2014 and 2017.
- Illinois and Indiana Entire shoreline Low participation throughout, particularly in 2015 and 2016.
- N Michigan Pentwater to Leland & Traverse City High participation in Pentwater, Ludington and Manistee.
- S Michigan New Buffalo to Whitehall High participation in Grand Haven. Moderate in St. Joe and S. Haven.

#### Lake Huron

N Lk. Huron – Mackinac Bridge to Alpena High participation in Rogers City.

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## Salmon Ambassadors 2014-2017

Where and when were stocked and wild Chinooks caught?



### **Seasonal Trends by Region**

In northern Wisconsin and Lake Huron, July was the peak month for Chinook Salmon catches. Southern Michigan waters of Lake Michigan experienced fast fishing in May and August, while northern Michigan peaked in June and August. In northern Michigan waters of Lake Michigan, % Wild increased each month from May to September. Southern Wisconsin and northern Lake Huron showed the opposite trend, with % Wild lowest in September. Trends in other regions were less clear-cut.

	May		June		July		August		September	
	Ν	% Wild	Ν	% Wild	Ν	% Wild	Ν	% Wild	Ν	% Wild
N Wisconsin	0	NA	143	62%	693	63%	376	63%	117	70%
S Wisconsin	56	45%	152	56%	161	65%	223	65%	95	36%
Illinois & Indiana	17	71%	31	65%	50	76%	40	65%	14	64%
N Michigan	395	66%	693	71%	567	77%	897	80%	405	86%
S Michigan	884	70%	366	72%	323	76%	775	73%	220	74%
N Lake Huron	0	NA	14	64%	159	64%	251	51%	143	31%

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# Salmon Ambassadors 2014-2017

How did size structure of Lake Michigan salmon change?

In 2013, salmon stocking was cut, and natural reproduction also declined by ~80%.

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This graph shows that volunteers caught few fish less than 20 inches long in 2014. Most of these small fish probably belonged to the weak 2013 year class.

By contrast, bars for larger fish are higher and show a good mix of Age 2 and 3 fish.

In 2015, wild fish from 30 to 34 inches long were a common catch. Most of these fish were probably from the strong 2012 year-class.

The lower bars for 20-30" fish show the effect of the weak 2013 yearclass on the fishery.

#### Hope for the Future

The total number (N) of fish caught by volunteers dropped in 2017, but the relative abundance of small wild fish was the highest recorded.

In fact, 29% of all wild Chinook Salmon caught in 2017 were under 20 inches long.

By comparison, in 2014 only 5% of wild salmon were less than 20 inches long. This increased to 11% in 2015 and 20% in 2016.



#### Interpreting the Graphs

These graphs show the number of Lake Michigan Chinook Salmon of different sizes caught by volunteers.

The total number of fish for each year is reported as "N" and the height of each bar corresponds to the number of fish of a particular length group in inches.

Length groups include the lower bound, but not the upper. This means that bars for "34" would include fish from 34.0 to 35.9 inches long, but not 36-inch fish.

By 2016, most of the salmon from the strong 2012 year-class had matured and died.

The resulting size structure is less uneven than we saw in 2015.

#### **Size Structure**

The size of a fish is related to both its age and its growth rate.

Our volunteers did not age their fish, but the change in size structure over time provides clues to the changing balance of young and old fish in the lake.

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