

YELLOW PERCH TASK GROUP EXECUTIVE SUMMARY REPORT MARCH 2017



2016 Fisheries Review

The lakewide total allowable catch (TAC) of Yellow Perch in 2016 was 9.208 million pounds. This allocation represented a 13% decrease from a TAC of 10.258 million pounds in 2015. For Yellow Perch assessment and allocation, Lake Erie is partitioned into four management units (MUs; Figure 1). The 2016 TAC allocation by MU was 2.292, 2.756, 3.776, and 0.384 million pounds for MUs 1 through 4, respectively. The lakewide harvest of Yellow Perch in 2016 was 7.223 million pounds, or 78% of the total 2016 TAC. This was a 4% increase from the 2015 lakewide harvest. Harvest from Yellow Perch MUs 1 through 4 was 2.230, 2.076, 2.651, and 0.266 million pounds, respectively (Table 1). The portion of TAC harvested was 97%, 75%, 70%, and 69%, in MUs 1 through 4, respectively. In 2016, Ontario harvested 4.482 million pounds, followed by Ohio (2.201 million lbs.), Michigan (0.397 million lbs.), Pennsylvania (0.115 million lbs.), and New York (0.028 million lbs.).

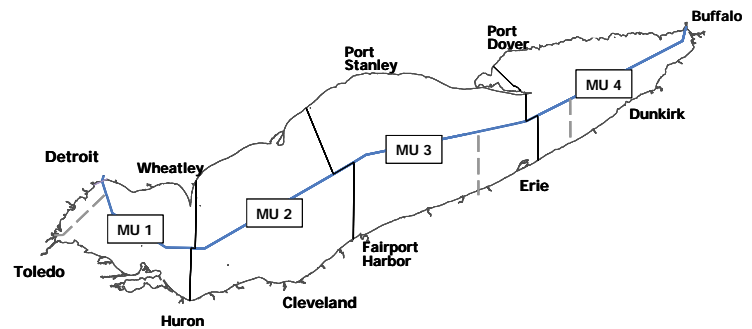


Figure 1. Yellow Perch Management Units (MUs) of Lake Erie.

Targeted gill net effort in Ontario waters in 2016 increased from 2015 in MU1 (+50%), and MU3 (+19%), and decreased in MU2 (-32%) and MU4 (-27%). Angling effort in U.S. waters in 2016 increased from 2015 in MU1 (+35%), and decreased in MU2 (-6%), MU3 (-15%), and MU4 (-37%). U.S. trap net effort in 2016 decreased in MU2 (-29%) and MU4 (-44%), and increased in MU3 (+89%). In 2016 trap net effort and harvest occurred in MU1 for the first time since 2011. Fishing effort by jurisdiction and gear type is presented in Table 2.

Targeted gill net harvest rates in 2016 increased in MU1 (+18%), MU2 (+25%), and MU4 (+6%) from 2015 rates, and declined MU3 (-19%). Angling harvest rates, in fish harvested per angler hour, increased in Ohio and Michigan waters of MU1 (+32% and +79% respectively), and in Pennsylvania waters of MU4 (+8%), but declined in Ohio waters of MU2 (-18%) and MU3 (-41%), in Pennsylvania waters of MU3 (-29%), and in New York waters of MU4 (-53%). In 2016, the trap net harvest rate decreased in MU2 (-4%), MU3 (-22%), and MU4 (-5%) compared to 2015 harvest rates.

Table 1. Lake Erie Yellow Perch harvest by jurisdiction and gear type for 2016.

MU	Harvest by jurisdiction (lbs)								Total (lbs)
	Michigan	Ontario	Ohio		Pennsylvania		New York		
	sport	all commercial*	sport	commercial trap net	sport	commercial trap net	sport	commercial trap net	
1	397,044	947,052	782,723	103,345					2,230,164
2		1,283,379	104,836	688,033					2,076,248
3		2,020,470	172,705	349,844	56,824	51,148			2,650,991
4		231,063			6,791	0	16,613	11,465	265,932
Total	397,044	4,481,964	1,060,264	1,141,222	63,615	51,148	16,613	11,465	7,223,335

*Small mesh gill net, large mesh gill net, trap net (MU1), and incidental trawl (MUs 2-4) harvest combined.

Table 2. Lake Erie Yellow Perch fishing effort by jurisdiction and gear type for 2016.

MU	Effort by jurisdiction							
	Michigan	Ontario	Ohio		Pennsylvania		New York	
	sport (angler hours)	commercial (km gill net)*	sport (angler hours)	commercial (trap net lifts)	sport (angler hours)	commercial (trap net lifts)	sport (angler hours)	commercial (trap net lifts)
1	251,426	6,091	824,418	2,446				
2		6,424	204,745	4,510				
3		5,964	181,622	2,000	57,545	604		
4		1,303			11,934	0	27,436	248
Total	251,426	19,782	1,210,785	8,956	69,479	604	27,436	248

*Targeted small mesh gill net effort only.

Statistical Catch-at-Age Analysis and Recruitment Estimate for 2017

Population size for 1975 to 2016 for each MU was estimated by statistical catch-at-age analysis (SCAA). Stock size estimates for 2017 (age-3-and-older) were projected from SCAA estimates of 2016 population size and age-specific survival rates in 2016. Age-2 Yellow Perch recruitment in 2017 was predicted by multi-model averaging of juvenile Yellow Perch survey indices against SCAA abundance estimates of age-2 Yellow Perch within each MU. Projected age-2 Yellow Perch recruitment from the 2015 year class was incorporated into the 2017 population estimate along with estimates of age-3-and-older fish in each MU, producing the total standing stock of age-2-and-older fish in 2017.

In 2017 the YPTG used two SCAA models in each MU to estimate abundance. The first was the model the YPTG has used in the past (hereafter referred to as the YPTG model), the second was the model developed by the Quantitative Fisheries Centre at Michigan State University (hereafter referred to as the Peterson-Reilly or PR model) as part of the Lake Erie Percid Management Advisory Group process. Descriptions of the YPTG and PR models can be found in the complete YPTG report on the GLFC's Lake Erie Committee Yellow Perch Task Group website (see below).

The YPTG recommends using the YPTG model in 2017. The current harvest policy was developed for the YPTG assessment models after conducting a stock recruitment simulation to evaluate the risks of various fishing strategies, while the formal risk assessment has yet to be completed for the PR models.

Using the YPTG model, abundance estimates of age-2-and-older Yellow Perch in 2017 are projected to decrease by 21%, 5%, and 9% in MU1, MU2, and MU3, respectively, and to increase by 38% in MU4 compared to the 2016 abundance estimates. Age-2-and-older Yellow Perch abundance in 2017 is projected to be 58.716, 48.386, 48.092, and 11.672 million age-2-and-older Yellow Perch in MUs 1 through 4, respectively. Using mean weight-at-age information from assessment surveys, 2017 biomass estimates are projected to decrease in MU1 (-6%), MU2 (-6%), and in MU3 (-17%), and to increase in MU4 (+15%), compared to 2016 estimates.

Using the PR model, abundance estimates of age-2-and-older Yellow Perch in 2017 are projected decrease by 18% and 10%, in MU1 and MU2 respectively, and to increase by 8% and 98% in MU3 and MU4 compared to the 2016 abundance estimates. Age-2-and-older Yellow Perch abundance in 2017 is projected to be 70.150, 79.663, 115.340, and 14.124 million age-2-and-older Yellow Perch in MUs 1 through 4, respectively. Using mean weight-at-age information from assessment surveys, biomass estimates in 2017 are projected to decrease in MU1 (-4%), MU2 (-5%), and in MU3 (-3%), and to increase in MU4 (+57%), compared to 2016 estimates.

Recommended Allowable Harvest (RAH) for 2017

Standard errors and ranges for population estimates were calculated for each age in 2016, and projected forward into 2017 using estimated survival rates from catch-at-age. RAH min, mean, and max values are based on mean population estimates minus or plus one standard deviation. Proposed target fishing rates for RAHs in 2017 are the same as 2016. The fishing rates applied to abundance estimates from the PR model were the same as those used for the YPTG model since a formal risk assessment has not been completed for harvest strategies applied to the PR model. RAH ranges are presented in Table 3 for management units 1 through 4.

Table 3. Lake Erie Yellow Perch fishing rates and RAH (in millions of pounds) for 2017 by management unit.

MU	Fishing Rate	Recommended Allowable Harvest (millions lbs.)					
		YPTG Model			PR Model		
		MIN	MEAN	MAX	MIN	MEAN	MAX
1	0.670	1.930	3.874	5.825	3.062	3.667	4.279
2	0.670	1.654	2.567	3.485	3.237	3.852	4.467
3	0.700	1.351	2.588	3.857	3.594	4.361	5.145
4	0.300	0.168	0.303	0.446	0.199	0.252	0.316
Total		5.103	9.332	13.614	10.092	12.131	14.207

The complete YPTG report is available from the GLFC's Lake Erie Committee Yellow Perch Task Group website at: <http://www.glfc.org/lakecom/lec/YPTG.htm>, or upon request from an LEC, Standing Technical Committee (STC), or YPTG representative.