

# YELLOW PERCH TASK GROUP EXECUTIVE SUMMARY REPORT MARCH 2010



## 2009 Fisheries Review

The Lake Erie yellow perch lakewide total allowable catch (TAC) in 2009 was 12.012 million pounds. This allocation represented an 18.2% increase from a TAC of 10.160 million pounds in 2008. For yellow perch assessment and allocation, Lake Erie is partitioned into four Management Units (Units, or MUs; Figure 1). The 2009 allocation by Management Unit was 2.040, 5.313, 4.200, and 0.459 million pounds for Units 1 through 4, respectively. The lakewide harvest of yellow perch in 2009 was 9.137 million pounds, 76.1% of the 2009 TAC. This was a 9.7% increase from the 2008 harvest of 8.330 million pounds. Harvest by Lake Erie Management Units 1 through 4 was 1.404, 4.298, 3.055, and 0.381 million pounds, respectively (Table 1). The portion of TAC harvested was 68.8%, 80.9%, 72.7%, and 82.9% in MUs 1 through 4, respectively. In 2009, Ontario harvested 5.888 million pounds, followed by Ohio (2.863 million lbs.), Pennsylvania (229 thousand lbs.), Michigan (87 thousand lbs.), and New York (70 thousand lbs.).

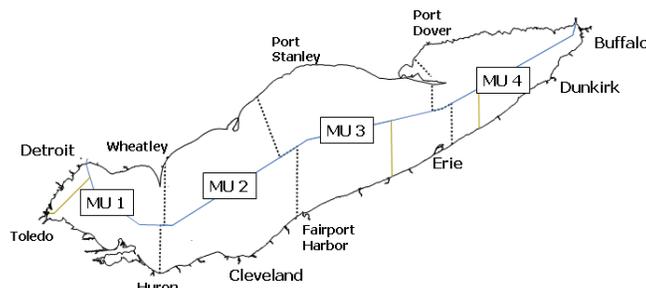


Figure 1. Yellow Perch Management Units (MUs) of Lake Erie.

Targeted gill net effort in Ontario waters increased 85.0% in MU1, 77.5% in MU2, 21.4% in MU3 and 26.2% in MU4 from 2008. U.S. angling effort increased in 2009 from 2008 in MU1 (15.3%), MU3 (24.5%), and MU4 (90.6%), but decreased in MU2 (7.2%). U.S. trap net effort (lifts) in 2009 decreased in MU3 (55.9%), but increased in MU2 (58.6%) and MU4 (56.9%) compared to 2008. Again in 2009, there was no trap net effort for yellow perch in the Ohio waters of MU1. Fishing effort by jurisdiction and gear type is presented in Table 2

Table 1. Lake Erie yellow perch harvest by jurisdiction and gear type for 2009.

MU	Harvest by jurisdiction (lbs)								Total (lbs)
	Michigan	Ontario	Ohio		Pennsylvania		New York		
	sport	commercial*	sport	commercial trap net	sport	commercial trap net	sport	commercial trap net	
1	87,319	853,137	463,564	0					1,404,020
2		2,495,611	463,362	1,338,616					4,297,589
3		2,266,727	485,184	112,030	155,446	35,296			3,054,683
4		272,579			37,991	0	56,554	13,476	380,600
<b>Total</b>	87,319	5,888,054	1,412,110	1,450,646	193,437	35,296	56,554	13,476	9,136,892

\*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 2009.

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	130,556	3,058	578,030	0				
2		5,545	417,660	6,317				
3		4,050	289,602	482	139,438	121		
4		718			58,475	0	58,829	215
<b>Total</b>	130,556	13,371	1,285,292	6,799	197,913	121	58,829	215

\*Targeted small mesh gill net effort only.

## ADMB Catch-at-Age Analysis and Recruitment Estimate for 2010

Population size for each Management Unit was estimated by catch-at-age analysis using modeling software Auto Differentiation Model Builder (ADMB). Age 2 yellow perch recruitment in 2010 was predicted by linear regression of juvenile yellow perch trawl indices against catch-at-age analysis estimates of two-year-old abundance in each

management unit. Estimates of age 2 yellow perch recruitment for 2010 (the 2008 year class) were below average in MUs 1 and 2, average in MU3 and above average in MU4.

Stock size estimates for 2010 (ages 3 and older) were projected from catch-at-age analysis estimates of 2009 population size and age-specific survival rates in 2009. Projected age-2 yellow perch recruitment from the 2008 year class (method described above) was added to the 2010 population estimate for older fish in each Unit, producing the total standing stock in 2010 (Table 3). Estimated abundances of ages 2 and older yellow perch in 2010 are lower by 12.0%, 6.4%, and 14.9% than the 2009 abundances in Management Units 1 to 3, respectively, and 11.2% higher in MU4. Abundance projections for 2010 were 31.4, 52.4, 81.1, and 23.8 million age 2 and older yellow perch in Management Units 1 through 4, respectively (Table 3). Using weight-at-age information from assessment surveys, in 2009 biomass remained about the same as 2008 in MUs 1 and 3, but increased in MU 4 (14.3%), and decreased in MU2 (16.5%).

### Recommended Allowable Harvest (RAH) for 2010

Proposed target fishing rates for RAHs in 2010 have changed slightly from targeted fishing rates used in 2009. New fishing rates for each Management Unit are based on maintenance level fishing rates proposed for the Yellow Perch Management Plan (YPMP) exploitation policies. Please see the complete YPTG report for a full description on the progress of the YPMP and yellow perch exploitation policies. Proposed targeted fishing rates and RAHs are presented in Table 4 for Management Units 1 through 4.

**Table 3.** Projection of the 2010 Lake Erie yellow perch population. Stock size estimates are derived from ADMB and age 2 estimates for 2010 are derived from ADMB age 2 abundance against YOY and yearling trawl indices.

MU	Age	2009 Mean Stock Size (millions fish)	Fishing Mortality (F)	Survival Rate (S)	2010 Mean Stock Size (millions fish)	Mean Weight in Population (kg)	Stock Biomass		
							2009 (millions kgs)	2010 (millions kgs)	2010 (millions lbs)
<b>1</b>	2	20.247	0.053	0.636	10.502	0.081	1.438	0.851	1.876
	3	8.084	0.232	0.532	12.871	0.131	1.035	1.686	3.718
	4	3.446	0.297	0.498	4.297	0.155	0.665	0.666	1.468
	5	0.376	0.307	0.493	1.717	0.209	0.094	0.359	0.791
	6+	3.239	0.325	0.484	1.754	0.227	0.739	0.398	0.878
	<i>Total</i>		<i>35.392</i>	<i>0.139</i>	<i>0.583</i>	<i>31.141</i>	<i>0.127</i>	<i>3.970</i>	<i>3.960</i>
<b>2</b>	2	19.981	0.050	0.638	22.940	0.079	1.499	1.812	3.996
	3	10.617	0.176	0.562	12.740	0.129	1.295	1.644	3.624
	4	8.042	0.430	0.436	5.968	0.176	1.472	1.050	2.316
	5	0.961	0.477	0.416	3.507	0.171	0.187	0.600	1.322
	6+	16.395	0.468	0.420	7.282	0.250	3.754	1.821	4.014
	<i>Total</i>		<i>55.996</i>	<i>0.241</i>	<i>0.527</i>	<i>52.438</i>	<i>0.132</i>	<i>8.207</i>	<i>6.926</i>
<b>3</b>	2	37.613	0.004	0.668	19.493	0.065	2.257	1.267	2.794
	3	26.692	0.029	0.651	25.112	0.112	2.616	2.813	6.202
	4	12.551	0.080	0.619	17.381	0.167	2.297	2.903	6.400
	5	1.156	0.084	0.616	7.767	0.199	0.253	1.546	3.408
	6+	17.313	0.084	0.616	11.383	0.277	4.207	3.153	6.953
	<i>Total</i>		<i>95.326</i>	<i>0.036</i>	<i>0.647</i>	<i>81.136</i>	<i>0.144</i>	<i>11.630</i>	<i>11.681</i>
<b>4</b>	2	7.054	0.001	0.670	9.775	0.103	0.614	1.007	2.220
	3	7.029	0.017	0.659	4.724	0.186	1.153	0.879	1.937
	4	4.280	0.039	0.645	4.632	0.243	1.109	1.126	2.482
	5	0.231	0.059	0.632	2.760	0.279	0.064	0.770	1.698
	6+	2.850	0.058	0.633	1.949	0.322	0.918	0.628	1.384
	<i>Total</i>		<i>21.445</i>	<i>0.022</i>	<i>0.656</i>	<i>23.839</i>	<i>0.185</i>	<i>3.857</i>	<i>4.409</i>

**Table 4.** Lake Erie yellow perch fishing rates and Recommended Allowable Harvest (RAH; in millions of pounds) for 2010 by Management Unit.

MU	Fishing Rate	Recommended Allowable Harvest (millions lbs.)
<b>1</b>	0.670	2.094
<b>2</b>	0.670	3.389
<b>3</b>	0.700	6.251
<b>4</b>	0.300	0.792
<b>Total</b>		12.526

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