

# LAKE ERIE COMMITTEE WALLEYE TASK GROUP EXECUTIVE SUMMARY REPORT MARCH 2011

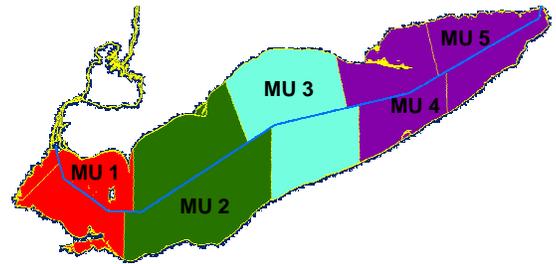


Figure 1. Lake Erie walleye management units

## Introduction

This summary report highlights elements of the 2011 Walleye Task Group (WTG) annual report. The complete WTG report is available from the Great Lakes Fishery Commission's (GLFC) Lake Erie Committee (LEC) WTG website at <http://www.glfc.org/lakecom/lec/WTG.htm>, or upon request from an LEC, Standing Technical Committee (STC), or WTG representative.

The WTG continues to partition the lake into five management units (MUs) for data analysis and managing walleye (Figure 1). Population models are run for a combined west-central area (MUs 1 to 3) and for an eastern area (MUs 4 and 5) while a Recommended Allowable Harvest (RAH) is determined only for the west-central portion of the lake.

Six charges were addressed by the WTG during 2010-2011: (1) Maintain and update centralized time series of datasets and methodology required for population models and assessment; (2) Improve existing population models to produce the most scientifically-defensible method for estimating and forecasting abundance, recruitment, and mortality; (3) Report RAH levels for 2011; (4) Review jaw and PIT tagging study results and provide guidance/recommendations for future tagging strategies to the LEC; (5) Assist the Habitat Task Group with the identification and collection of habitat metrics for the purpose of re-examining the extent of suitable adult walleye habitat in Lake Erie; and (6) Assist the STC with a five-year review of the Walleye Management Plan. Please see the full report for details of activities addressing all the charges. This executive summary will focus on WTG charges 1 and 2.

## 2010 Fishery Review

The total allowable catch (TAC) in quota area waters of the west and central basins for 2010 was 2.200 million fish. This allocation represented a 10% decrease from the 2009 TAC of 2.450 million fish. In the TAC area, the total harvest was 1.997 million fish, or 91% of the quota (Table 1). Harvest in the non-TAC area of the eastern basin amounted to 115,057 fish. Lake-wide walleye harvest was estimated at 2.112 million fish for 2010. Sport fishery (1.153 million fish) and commercial fishery (0.962 million fish) harvest levels seen in 2010 were both below the long-term (1975-2010) means (2.458 and 2.107 million fish, respectively).

Table 1. Summary of walleye harvest by jurisdiction in Lake Erie, 2010.

in number of fish	TAC Area (MU-1, MU-2, MU-3)				Non-TAC Area (MU-4 & MU-5)				All Areas Total
	Michigan	Ohio	Ontario	Total	NY	Penn.	Ontario	Total	
TAC	128,260	1,124,420	947,320	2,200,000	-	-	-	-	2,200,000
TAC % Share	5.83%	51.11%	43.06%	100.00%	-	-	-	-	100.00%
Harvest	55,248	958,366	983,397	1,997,011	36,683	55,050	23,324	115,057	2,112,068

Total commercial walleye fishery effort decreased in 2010 compared to 2009 (Table 2). Commercial gill net effort declined in all MUs with the largest decreases from 2009 in MU 1 and MUs 4&5 (46% and 48% respectively). The total commercial effort of 4,937 km fished was the lowest recorded since 1975, representing 25% of the long-term average (19,596 km). Commercial effort was greatest in the west basin, declining eastward in the lake. Sport fishery effort in 2010 decreased from 2009 by 27% in Michigan waters and increased by 32% in Ohio waters of MU1 (Table 3). Sport effort in other parts of Ohio waters decreased: MU2 by 16% and MU3 by 24%. Sport effort was increased by 37% and 40% for Pennsylvania and New York respectively (Table 3). In comparison to the years since 2000, lake-wide sport effort remained on par in 2010. Over the long-term since 1975, however, Lake Erie walleye sport effort in 2010 (2.810 million angler hours) represented 51% of the average.

Table 2. Ontario walleye gillnet effort in 2010.

	MU1	MU2	MU3	MU4&5
Effort (km)	1,918	1,371	1,401	247
change from 2009	-46%	-37%	-20%	-48%

Table 3. Summary of sport fishery effort reported in thousands of hours for 2010.

	MU1 - MI	MU1 - OH	MU2 - OH	MU3 - OH	MU4&5 - PA	MU4&5 - NY
Effort (1000s hrs)	226	1,403	652	219	170	140
change from 2009	-27%	32%	-16%	-24%	37%	40%

Lake-wide catch rates in 2010 declined for the sport fishery, but increased for the commercial fishery, expressed as harvested fish per hour or per kilometer of net fished, respectively, but catch rates remained near (sport) or above (commercial) long-term averages. Compared to 2009, sport catch rates by MU decreased by 16% in MU1, and increased

by 7% in MU2, and 18% in MU3. Gill net CUEs increased from the previous year across all MUs, with increases of 59%, 37%, 36%, and 63% in MU1, MU2, MU3, and MUs 4 and 5, respectively. Age distribution of fish in the harvest was dominated by ages 7-and-older fish (including the 2003 year class); lake-wide, they comprised 36% of the commercial fishery and 63% of the sport fishery. The 2007 year class (age-3 walleye) represented 42% of the commercial harvest and 21% of the total sport harvest. Age 3 (2007 year class) and ages 7-and-older (includes the 2003 year class) contributed 51% and 31%, respectively, to the total lake-wide harvest.

### Catch-at-Age Analysis & Recruitment for 2011

The WTG continued to use the Automatic Differentiation Model Builder (ADMB) catch-at-age analysis to estimate walleye population abundance from 1978 to 2010. The model includes fishery data from the Ontario commercial fishery (west and central basins) and sport fisheries in Ohio (west and central basins) and Michigan (west basin). In addition to fishery data, this model includes assessment data from two index gill net surveys from: Michigan-Ohio (west and west-central basins combined) and Ontario (west, west-central, and east-central basins combined). Lambda values for fishery and survey gears were set external to the model by an Expert Opinion WTG and MSU-QFC exercise completed last year. Age-2 fish in 2010 (2008 year class) were estimated using a regression of ADMB age-2 estimates and trawl index data. The 2010 west-central population estimate from the WTG 2011 model was 26.697 million ages 2 and older walleye. There were an estimated 9.643 million ages 4 and older walleye in 2010. The 2007 year class was estimated to contribute approximately 13.323 million age-3 fish to the population in 2010.

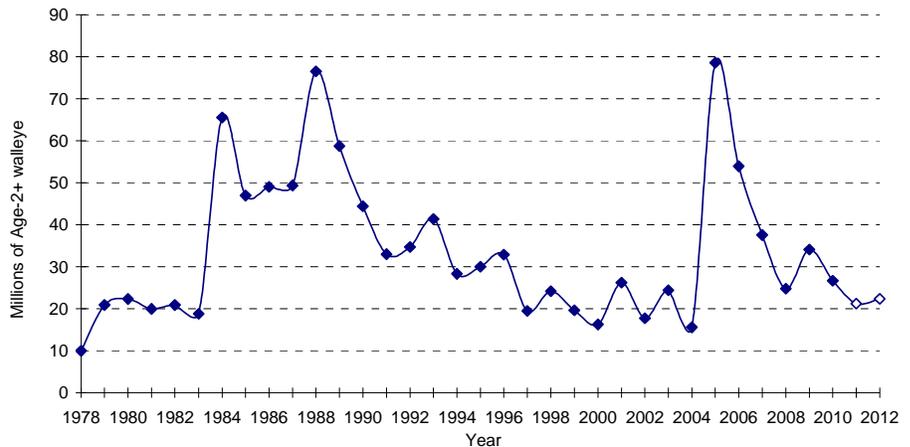


Figure 2. Population estimate of Lake Erie walleye ages 2 and older from 1978-2010, and projections for 2011 and 2012 based on age-2 recruitment regression of YOY walleye in interagency trawls and the current sliding-F fishing policy.

### 2011 Population Abundance

Stock size estimates for 2011 (ages 4 and older) were projected from ADMB catch-at-age analysis estimates of 2010 population size and age-specific survival rates in 2010. Age-3 abundance was estimated from the recruitment regression age-2 estimate for the 2008 cohort and age-specific survival rate in 2010. Projected age-2 recruitment from the 2009 year class added to the 2011 population estimate for ages 3 and older fish produces the total standing stock in 2011 of 21.243 million fish (Table 4). Statistical uncertainty surrounding population estimates is expressed as one standard error around the stock size estimate as in Table 4 for the standard model output.

Table 4. Stock size estimates and RAH values for mean and ± one standard error.

Age	2011 Stock Size (millions)			2011RAH (millions of fish)			Est'd 2012 Stock Size (millions)	
	Min	Mean	Max	Min	Mean	Max	Mean	
2	2.670	3.550	4.720	0.068	0.121	0.190	9.380	
3	1.988	2.653	3.541	0.258	0.427	0.665	2.476	
4	6.635	8.701	10.767	0.869	1.412	2.037	1.566	
5	0.285	0.358	0.431	0.037	0.058	0.082	5.127	
6	0.484	0.596	0.707	0.063	0.097	0.134	0.211	
7+	4.486	5.384	6.282	0.536	0.804	1.095	3.582	
<b>Total</b>	<b>16.550</b>	<b>21.243</b>	<b>26.448</b>	<b>RAH 2+</b>	<b>1.832</b>	<b>2.919</b>	<b>4.202</b>	<b>22.342</b>
<b>(3+)</b>	<b>13.879</b>	<b>17.692</b>	<b>21.728</b>	<b>RAH 3+</b>	<b>1.764</b>	<b>2.798</b>	<b>4.012</b>	<b>12.962</b>
				<b>F</b>	<b>0.131</b>	<b>0.209</b>	<b>0.248</b>	

### 2010 Harvest Strategy and Recommended Allowable Harvest (RAH)

With the implementation of the Walleye Management Plan in 2005, yield strategies and RAH are linked to ages 2 and older walleye population levels of abundance. Using results from the WTG 2011 model, and based on the sliding-F scale harvest policy (Figure 3) and selectivity values from the current fisheries, an RAH of 2.919 million fish was calculated for 2011 with a range of 1.832-4.202 million fish (Table 4). Please refer to the complete 2011 WTG report for a more detailed explanation of the population abundance projections and RAH derivation.

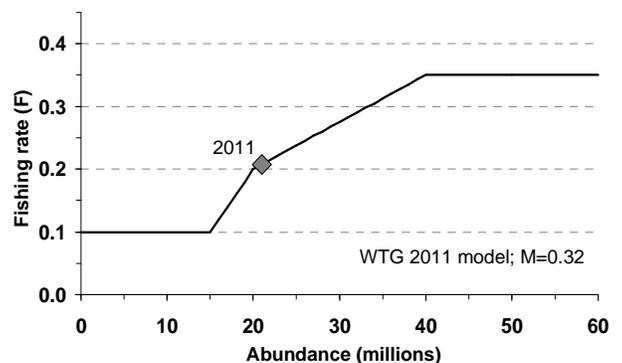


Figure 3. The Lake Erie walleye sliding-F harvest policy. Diamond symbol indicating 2011 projected abundance and corresponding F.