

LAKE ERIE COMMITTEE WALLEYE TASK GROUP EXECUTIVE SUMMARY REPORT MARCH 2013

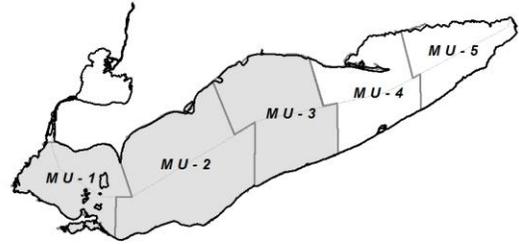


Figure 1. Lake Erie walleye management units (MU).

Introduction

This summary report highlights elements of the 2013 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 partitions 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) to produce a Recommended Allowable Harvest (RAH). The WTG assesses the status of walleye and fisheries in MUs 4 and 5 but does not generate population estimates due to uncertainty concerning stock delineation and walleye migration into the east basin.

Five charges were addressed by the WTG during 2012-2013: (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 and reliable method for estimating and forecasting abundance, recruitment, and mortality and continue to explore data pooling, catchability blocks, lambdas, and alternate selectivities to improve the existing model.; (3) Report RAH levels for 2013; (4) Review jaw and PIT tagging study results and provide guidance/recommendations for future tagging strategies to the LEC; (5) Assist the STC with potential development of a new exploitation strategy and with updating 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, 2, and 3.

2012 Fishery Review

The total allowable catch (TAC) in quota area waters of the west and central basins for 2012 was 3.487 million fish. This allocation represented a 19% increase from the 2011 TAC of 2.919 million fish. In the TAC area, the total harvest was 2.364 million fish, or 68% of the quota (Table 1). Harvest in the non-TAC area of the eastern basin amounted to 110,031 fish. Lake-wide walleye harvest was estimated at 2.474 million fish for 2012. Sport fishery (1.138 million fish) and commercial fishery (1.338 million fish) harvest levels reported for 2012 were both below the long-term (1975-2011) means (2.407 and 2.083 million fish, respectively).

Table 1. Summary of walleye harvest by jurisdiction in Lake Erie, 2012.

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	203,292	1,782,206	1,501,502	3,487,000	-	-	-	-	3,487,000
TAC % Share	5.83%	51.11%	43.06%	100.00%	-	-	-	-	100.00%
Harvest	86,658	921,390	1,355,522	2,363,570	36,975	44,796	28,260	110,031	2,473,601

Total commercial walleye fishery effort increased in 2012 compared to 2011 (Table 2). Commercial gill net effort in MUs 1, 2, and 3 increased (77%, 32% and 46% respectively), but declined in MUs 4&5 (28%). The total commercial effort of 9,804 km fished 49% below the long-term average (19,235 km). Commercial effort was greatest in the west basin, declining eastward in the lake. Sport fishery effort in 2012 increased relative to 2011 by 47% in Michigan waters, and by 49% and 62% in Ohio waters of MU1 and MU2, respectively (Table 3). Sport effort in the Ohio waters of MU3 declined by 16% compared to 2011. Sport effort increased in Pennsylvania (3%) and New York (17%) waters of MUs 4&5 (Table 3). The walleye sport effort in 2012 (2.597 million angler hours) represented 48% of the long-term average.

Table 2. Ontario walleye gillnet effort in 2012.

	Unit 1	Unit 2	Unit 3	Units 4 & 5
Effort (km)	4,674	2,480	2,298	352
change from 2011	77%	32%	46%	-28%

Table 3. Summary of sport fishery effort reported in thousands of hours for 2012.

	Unit 1 - MI	Unit 1 - OH	Unit 2 - OH	Unit 3 - OH	Units 4&5- PA	Units 4&5- NY
Effort (1000s hrs)	242	1,283	560	182	160	169
change from 2011	47%	49%	62%	-16%	3%	17%

Lake-wide catch rates in 2012 increased for the sport fishery (fish per hour) and declined for the commercial fishery (fish per kilometer of net fished). The 2012 catch rates in the sport fishery (0.42) were slightly below the long-term average but above the long-term average for the commercial fishery. Compared to 2011, the 2012 sport catch rates by MU increased by 67% in MU1, 40% in MU2, 24% in MU3 and 46% in MUs 4&5. Gill net catch rates decreased by 36%, 17%, and 28% in MU1, MU2, and MU3, respectively, and increased 36% in MU4 during 2012. Age distribution of fish in the harvest was dominated by walleye age 7-and-older (including the 2003 year class); lake-wide, they comprised 35% of the commercial fishery and sport fishery. The 2010 (age 2) and 2009 (age 3) year classes each represented 19% of the total harvest in 2012. Age 5 (2007 year class) fish contributed 16% to the total lake-wide harvest.

Catch-at-Age Analysis Population Estimate & Recruitment for 2013 and 2014

The Lake Erie Percid Management Advisory Group (LEPMAG) asked the WTG to evaluate several changes to the current statistical catch-at-age (SCAA) model. The WTG evaluated the suggested model changes and after reaching consensus,

used these changes to the SCAA model (hereafter referred to as the integrated SCAA model) to estimate the abundance of walleye in the west and central basins (MUs 1 through 3) of Lake Erie in 2013. Based on the 2013 integrated SCAA model, the 2012 west-central population estimate was 22.183 million age 2 and older walleye (Figure 2). The estimated number of age 2 fish originating from the 2010 year class in 2012 was 9.097 million fish and represented 41% of the walleye (age 2 and older) in the

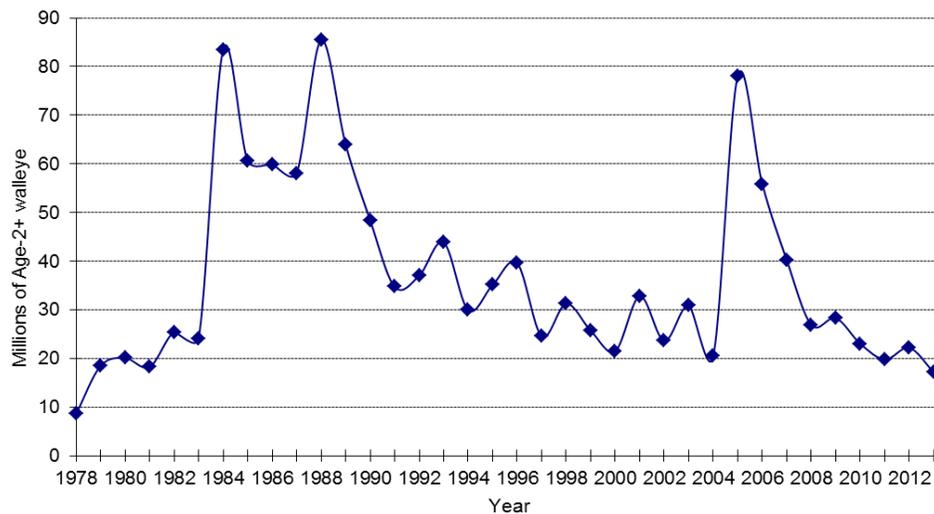


Figure 2. Population estimate of Lake Erie walleye ages 2 and older from 1978-2012, and projection for 2013 from the integrated SCAA model.

population. The second most abundant age group (20%) was walleye age 7 and older, followed by age 5 and age 3 fish, 15 and 15%, respectively.

Using the integrated SCAA model, the number of age 2 recruits entering the population in 2013 (2011 year-class) and 2014 (2012 year-class) will be 3.469 and 3.433 million walleye, respectively.

2013 Population Abundance

Using the 2013 integrated SCAA model, the projected abundance of walleye in the west-central population is 17.736 million walleye (Table 4). The most abundant (35%) year-class in the population is projected to be age 3 walleye from the 2010 cohort (6.274 million fish). Additionally, fish originating from the 2011 (age 2) and 2003 (age 7 and older) year-classes are expected to comprise substantial proportions of the population, 19% and 15%, respectively. Age 3 and older fish are expected to account for 80% of the 2013 population size. The spawning stock biomass (SSB) projected for 2013 is 21.700 million kilograms.

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

Age	2013 Stock Size (millions of fish)		60% F_{msy} 2013 RAH (millions of fish)			Projected 2014 Stock Size (millions)
	Mean	F	Min.	Mean	Max.	Mean
2	3.469		0.164	0.200	0.235	3.433
3	6.274		0.946	1.111	1.277	2.350
4	2.015		0.313	0.371	0.429	3.619
5	1.184		0.179	0.212	0.246	1.151
6	2.055		0.327	0.388	0.450	0.681
7+	2.739		0.491	0.605	0.719	2.644
Total (2+)	17.736	0.296	2.419	2.887	3.356	13.878
Total (3+)	14.267		2.256	2.688	3.120	10.444
SSB	21.700	mil. kgs				17.351 mil. kgs

probability of 2014 spawning stock biomass being less than 20% SSB_0 = 0.011%

2013 Harvest Strategy and Recommended Allowable Harvest (RAH)

As a result of the LEPMAG meetings held during 2012, an interim harvest policy was used to calculate the 2013 recommended allowable harvest (RAH). The harvest policy utilizes reference points including a targeted fishing rate based on 60% of the fishing rate at maximum sustainable yield and a limit reference point of 20% of the unfished spawning stock biomass. For a complete description of the LEPMAG process and the harvest policy used to calculate the RAH for 2013, please refer to the complete version of the 2013 Walleye Task Group report. Using results from the 2013 integrated SCAA model, the harvest policy adopted for 2013, and selectivity values from the current fisheries, a mean RAH of 2.887 million fish was calculated for 2013 with a range of 2.419 to 3.356 million fish (Table 4).