LAKE ERIE COMMITTEE
WALLEYE TASK GROUP
EXECUTIVE SUMMARY REPORT
MARCH 2024

Lake Erie Committee
REPRESENTING THE FISHERY MANAGEMENT AGENCIES OF LAKE ERIE & LAKE ST. CLAIR

Introduction

This summary report highlights elements of the 2024 Walleye Task Group (WTG) annual report. The complete WTG report is available from the Great Lakes Fishery Commission's Lake Erie Committee website at http://www.glfc.org/lake-erie-committee.php, or upon request from a Lake Erie Committee, Standing Technical Committee, or WTG representative.

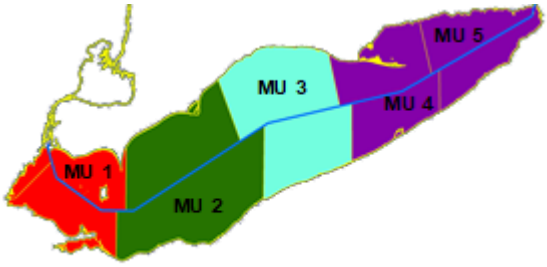

Figure 1. Lake Erie walleye management units

The WTG partitions the lake into five management units (MUs) for data analysis and managing Walleye (Figure 1). A statistical catch-at-age (SCAA) model is run for a combined west-central area (MUs 1 to 3) to produce abundance estimates that are used with a harvest control rule to generate a Recommended Allowable Harvest (RAH). The WTG assesses the status of Walleye and their resulting fisheries in MUs 4&5, but it does not generate an RAH due to uncertainties around the mixing of western and eastern basin populations.

2023 Fishery Review

The total allowable catch (TAC) for 2023 in the quota area (MUs 1 to 3) was 13.526 million fish (Table 1). This allocation represented a 7% decrease from the 2022 TAC. Total harvest in the quota area was 7.913 million fish, or 58.5% of the 2023 TAC. Harvest in the non-TAC area (MUs 4&5) was 0.628 million fish. Lake-wide Walleye harvest was estimated at 8.541 million fish. Both sport fishery (2.636 million fish) and commercial fishery (5.905 million fish) harvests were above long-term (1975-2022) averages (sport = 2.327 million fish and commercial = 2.288 million fish). Total lake-wide commercial fishery effort was 16,619 km of gill net, which decreased from 2022 and was below the 1975-2022 average (18,556 km). Commercial effort increased in MU3 and MUs 4&5 but decreased in MU1 and MU2 (Table 2). Historically MU1 has been the largest component of the commercial effort, which was the case in 2023 (Table 2). Lake-wide sport effort was 3.998 million angler hours, which is below the 1975-2022 average (4.965 million angler hours). Sport effort decreased in all MUs (Table 3). The 2023 harvest rates in the lake-wide sport fishery (0.64 fish/hour) remained high, as did those for the commercial fishery (355.3 fish/km gill net). Sport harvest rates decreased in MU1 and MU3, while they increased in MU2 and MU 4&5. Gill net catch rates increased in MU3 and MU 4&5 and decreased in MU1 and MU2. In all gear types combined, age 4 (42%; 2019 year class), age 7+ (16%; 2016 year class and older), and age 2 (15%; 2021 year class) Walleye were the most commonly harvested ages lake-wide.

Table 1. Summary of walleye harvest by jurisdiction in Lake Erie, 2023.

in number	TAC Area (MU-1, MU-2, MU-3)				Non-TAC Area (MU-4 & MU-5)				All Areas
of fish	Michigan	Ohio	Ontario	Total	NY	Penn.	Ontario	Total	Total
TAC	788,566	6,913,139	5,824,296	13,526,000	-	-	-	-	13,526,000
TAC % Share	5.83%	51.11%	43.06%	100.00%	-	-	-	-	100.00%
Harvest	142,619	2,089,520	5,680,932	7,913,071	80,582	239,353	308,428	628,363	8,541,434
Harvest %TAC	18.1%	30.2%	97.5%	58.5%					

Table 2. Ontario Walleye gillnet effort in 2023.

	Unit 1	Unit 2	Unit 3	Units 4 & 5
Effort (km)	6,691	6,000	2,965	963
change from 2022	-5%	-14%	12%	4%

Table 3. Summary of sport fishery effort reported in thousands of hours for 2023.

	Unit 1 - MI	Unit 1 - OH	Unit 2 - OH	Unit 3 - OH	Units 4&5- PA	Units 4&5- NY
Effort (1000s hrs)	266	1,855	1,018	376	285	198
change from 2022	-3%	-2%	-16%	-24%	-7%	-12%

Catch-at-Age Abundance Estimate and Projected 2024 and 2025 Recruitment

Based on the 2024 SCAA model, the 2023 population estimate was 88.5 million age 2 and older Walleye (Figure 2). The abundance of age 2 (2021 year class) fish was estimated to be 37.5 million and was most abundant year class in 2023, with age 4 (2019 year class), age 7+ (2016 and older year classes), and age 3 (2020 year class) also abundant. Using the 2024 SCAA model, the number of age 2 recruits entering the population in 2024 (2022 year class) and 2025 (2023 year class) were projected to be 13.8 million and 20.1 million fish, respectively. The projected abundance of age 2 and older Walleye in the MU 1 to 3 population is 72.1 million Walleye in 2024 (Table 4). Age 3 Walleye from the 2021 cohort (26.0 million fish) are projected to be the most abundant year class in 2024 followed by age 2 (13.8 million; 2022 year class) and age 5 fish (12.7 million; 2019 year class). The projected spawning stock biomass (SSB) for 2024 and 2025 is 72.247 and 59.090 million kilograms, respectively (Table 4).

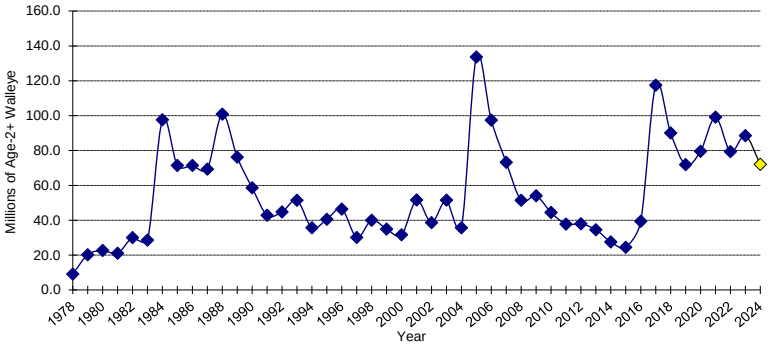

Figure 2. Population estimates of Lake Erie Walleye ages 2 and older from 1978 to 2023 (blue points), and the projection for 2024 (yellow point), from the WTG's SCAA model.

2024 Harvest Strategy and Recommended Allowable Harvest (RAH)

Beginning in 2015, the current Walleye management plan was implemented and includes the WTG's SCAA model and a probabilistic harvest control rule (HCR). The HCR sets the target fishing rate at 60% of F_{msy}, with an accompanying limit reference point that will reduce the target fishing rate beginning at 20% of the unfished spawning stock biomass (20%SSB_0). A probabilistic control rule, P-star (P*), was set at 0.05 and was incorporated to ensure that SSB in 2025 is not below the 20% SSB_0 threshold after fishing in 2024. In addition, there is a limitation of TAC variation from one year to the next of ± 20% to implement a measure of fishery stability. Using results from the 2024 SCAA model, the harvest policy, and selectivity estimates from the current fisheries, a mean RAH of 12.858 million fish was calculated for 2024, with a range of 10.453 to 15.264 million fish (Table 4). The TAC range for 2024 based on the SCAA model, the harvest policy, and the ± 20% TAC constraint from the previous year is 10.821 to 15.264 million fish.

Table 4. Estimated harvest of Lake Erie walleye for 2024, and population projection for 2025 when fishing with 60% F_{msy}. The 2024 and 2025 projected spawning stock biomass values are from the ADMB-2024 recruitment-integrated model. The range in the RAH was calculated using ± one standard deviation from the mean RAH.

SSB_0=	68.070	million kilograms
20% SSB_0=	13.614	million kilograms
F_{msy} =	0.485	

	2024 Stock Size (millions of fish)	60% F_{msy}		Rate Functions			2024 RAH (millions of fish)			Projected 2025 Stock Size (millions)	
Age	**Mean**	**F**	**Sel(age)**	**(F)**	**(S)**	**(u)**	**Min.**	**Mean**	**Max.**	**Mean**	
2	13.755		0.264	0.077	0.673	0.063	0.658	0.870	1.082	20.094	
3	25.987		0.913	0.266	0.557	0.201	4.300	5.223	6.147	9.251	
4	5.962		1.000	0.291	0.543	0.218	1.061	1.297	1.534	14.469	
5	12.696		0.941	0.274	0.552	0.206	2.139	2.620	3.101	3.237	
6	5.663		0.902	0.262	0.559	0.199	0.913	1.126	1.339	7.012	
7+	8.017		0.985	0.286	0.545	0.215	1.382	1.722	2.061	7.535	
Total (2+)	72.078	0.291				0.178	10.453	12.858	15.264	61.598	
Total (3+)	58.324						9.794	11.988	14.182	41.504	
SSB	72.247	mil. kgs								59.090	mil. kgs

probability of 2024 spawning stock biomass being less than 20% SSB_0 = 0.000%