

DRAFT

Framework for Large Mesh Gillnet Study Design

1. **Impetus for Study** - The impetus of this study is to evaluate the use of large mesh gill nets to maintain a viable and stable commercial fishery in zone 3 of Lake Michigan.
2. **Purpose of Study** – The purpose of this Study is to evaluate the harvest of lake whitefish and non-target species through the use of large mesh gillnets in Zone 3 of Lake Michigan commercial.
3. **Study Objectives**
 - i. Measure lake whitefish harvest in pounds and CPUE in large mesh gillnets in Zone 3
 - ii. Quantify by-catch composition in large mesh gillnets in Zone 3 by CPUE
 - iii. Evaluate the use of large mesh gillnets for lake whitefish harvest in Zone 3 for impacts to the long-term sustainability of the fishery.
 - iv. Characterize lake whitefish harvest and by-catch by species, length and other parameters (e.g., season, depth, mesh size)
4. **Components of the MOU**
 - i. Except as expressly provided by the MOU, conduct all large mesh gillnetting in accordance with all rules applicable to the use of large mesh gillnets in Zones 1 and 2 of Lake Michigan, as set forth in Chapter NR 25, Wisconsin Administrative Code.
 - ii. No more than 78,580 pounds of legal (17 inches or longer) whitefish may be retained by Glenn Seger during the calendar year (quota year).
 - iii. No more than 64,769 pounds of legal (17 inches or longer) whitefish may be retained by Gary Seger during the calendar year (quota year).
 - iv. The Cooperators shall use, and Sea Grant shall oversee, a video monitoring system (System) in combination with data collection by the Cooperators' crew in addition to on board monitoring
 - v. The Cooperators shall submit the information recorded in biweekly reports in accordance with NR 25.13(1), Wis. Admin. Code **and** via the Electronic Fish Harvest Reporting System (EFHRS) in accordance with NR 25.13(2), Wis. Admin. Code.
 - vi. Sea Grant shall analyze all data collected pursuant to the Study and complete quarterly and final reports summarizing such data. These reports shall include data analysis regarding target and non-target catches summarized by month, season, depth strata and other relevant variables. The Cooperators shall freely share and exchange with the Department and Sea Grant any information collected during the course of the Study, any reports or findings made after the conclusion of the Study, and all raw data collected during the Study. The Department retains the right to use such information, data and findings during and after the Study, but shall give due credit to the Cooperators if referring to any findings in publications or news media releases.
 - vii. This Agreement may be terminated for any reason by any of the Parties at any time. The Party initiating the termination shall provide written notice of such termination to all other Parties. Grounds for termination by the Department, as determined at the sole discretion of the Department, may include but are not limited to violation of terms of this Agreement, inaccuracies in video monitoring and excess mortality of lake trout or other species.
5. **Development of Evaluation Metrics**
 - i. Determine by-catch rates (number per 1000 feet of gill net) in large mesh gillnets in Zone 3 fishing for Lake Whitefish.
6. **Adaptive Flexibility of Study Design**
 - i. Conduct the Study via an adaptive approach that allows the Study Design to be updated as new information is gained. Modifications of Study Design must be approved by all Cooperators, the Department and any other persons or entities that are signatories to a memorandum of understanding entered into for the purpose of implementing the Study (collectively Parties). For example, if parameters of the Study Design are determined to result in high by-catch, the Study can be modified upon the agreement of all Parties to avoid these areas.
7. **Participation** – Participation in the Study is limited to cooperating commercial fishers agreed to by the Department
8. **Type and Size of Gillnets Permitted**
 - i. Meshes: commercial fishing – 4.5 inch stretch measure (+/- 1/16")
 - ii. Mesh height: half of net may not exceed 30 meshes deep, the other half can be larger but not exceed 50 meshes
 - iii. Length fished: Total effort not to exceed 20,000 feet per day
 - iv. Monofilament bottom gill nets
 - v. Experimental net configuration (how they are made) will mimic the net configuration fished by the Cooperator in mesh, how they are hung, etc. "They should fish the same to the greatest extent possible". Net specifics to be provided to the Department. Approximately 4 meshes per 8.5-9.5 inches.

- vi. Experimental net configuration 4.5 (+/- 1/16") – 500' – 30 or less meshes x 4.5 (+/- 1/16") – 500' – 50 meshes * 2 = 2,000 feet in total.
 - vii. Experimental and commercial nets may be fished within the same gang as long as they are separated by a spacer of no less than 50 feet.
- 9. Timeline** – Monitor fishers for minimum of 2 years; however, continuation of study beyond year 1 is contingent on acceptable by-catch rates or alteration of study design to reduce by-catch (e.g., mesh, mesh height, depth, season, other).
- 10. Time of Year** – Monitor year-round (open commercial fishing season; Dec. 1 – Oct. 31).
- i. Study reports completed on a quarterly basis.
- 11. Monitoring Requirements**
- i. Call in float plan to the Department the day before a lift and/or collaborate with the Department on scheduling for by-catch observation
 - ii. Collection of independent by-catch data via on board monitoring and closed-circuit video.
- 12. Effort and Quota Allocation Between Study Parameters and General Commercial Fishing**
- i. Effort
 - 1. Experimental nets – 2,000' per set
 - 2. Commercial gillnets
 - a. 18,000 feet per day when experimental nets are fished
 - b. 20,000 feet per day when experimental nets are NOT fished
 - ii. Once percent of quota is reached all effort (gillnet and trap net) must be devoted to study parameters
 - 1. If 129,000 pounds (90% of quota) are harvested prior to April 30, the remaining 14,334 pounds (10% of quota) shall be reserved for experimental nets
 - 2. If 131,900 pounds (92% of quota) are harvested prior to May 31, remaining 11,468 (8% of quota) shall be reserved for experimental nets
 - 3. If 134,500 pounds (94% of quota) are harvested prior to June 30, remaining 8,601 (6% of quota) shall be reserved for experimental nets
 - 4. If 137,600 pounds (96% of quota) are harvested prior to July 31, remaining 5,734 (4% of quota) shall be reserved for experimental nets
 - 5. If 140,500 pounds (98% of quota) are harvested prior August 31, remaining 2,867 (2% of quota) shall be reserved for experimental nets
- 13. Locations – Zone 3**
- i. Determine predefined spatial and temporal boundaries of study based on fish movement information.
 - 1. Time periods
 - a. Time Period 1 – December 1 to February 28 (December, January February)
 - b. Time Period 2 – March 1 to May 31 (March, April, May)
 - c. Time Period 3 – June 1 to August 31 (June, July, August)
 - d. Time Period 4 – September 1 to October 31
 - 2. Depth strata
 - a. Shallow - 0 to 75 feet
 - b. Mid - 75 to 150 feet
 - c. Deep – 150+ feet
 - 3. Time and depth periods
 - a. Time Period 1 by mid and deep depth strata
 - b. Time Period 2 by all depth strata
 - c. Time Period 3 by all depth strata
 - d. Time Period 4 by all depth strata
 - ii. Study component
 - 1. Time Period 1 - 7 sets in mid and deep depth strata – 14 sets total
 - 2. Time Period 2 - 7 sets in each depth strata - 21 sets total
 - 3. Time Period 3 - 7 sets in each depth strata - 21 sets total
 - 4. Time Period 4 - 5 sets in each depth strata - 15 sets total
- 14. Data Collection and Reporting**
- i. Reporting required for each gang or sampling unit (see example)
 - 1. Date
 - 2. Grid
 - 3. Effort (length by mesh)

4. Mesh size
 5. Mesh height
 6. Nights fished
 7. Depth (inside and outside buoys)
 8. GPS Location (inside and outside buoys)
 9. Catch by mesh and height (weight of legal whitefish and other quota or rough fish species, numbers of by-catch (including sub-legal whitefish)
 10. Cooperators agree to place at least 90% of by-catch caught in a time period on a measuring board or similar device viewable by the onboard camera system.
 11. Record the timing of when lifting the net began.
- ii. Reporting of harvest
1. Record information onboard using customized LMGN study form (see example)
 2. Transfer information to Electronic harvest reporting system

15. Cost

Item	Description	Cost	Responsible party
On board camera system	2 camera unit plus DVR	\$2,500	Collaborators
On board monitoring			
Staff costs	Once per week * 48 weeks * 10 hours * 12 per hour	\$5,760	WDNR
Fringe	Salary * 30 %	\$1,728	WDNR
Mileage	50 miles per trip * 48 * 0.61	\$1,464	WDNR
Meals	Lunch * 48 * \$10	\$480	WDNR
LMGN study nets			
4 1/2	500 feet (30 or less meshes) * 4	\$591 * 4 = \$2,364	Seger
4 1/2	500 feet (50 or less meshes) * 4	\$966 * 4 = \$3,864	Seger
Gill Net Maintenance			
	Repair gill nets as needed	\$4,000 per year	Seger
Bench top counter			
8 unit counter	2 units * \$200	\$400	Collaborators
Forms			
Kimdura water proof paper	1,000 copies * 0.30 per unit	\$300	Collaborators
TOTAL		\$22,860	