

## ***Walleye Population Objectives – Options for Discussion Compilation of Survey Results, 1/12/10***

### Background

An objective is a desired outcome or performance measure; a purpose is a broader statement indicating why management is being undertaken. Clear, measurable, and agreed upon management objectives can be used to guide decision making and evaluate management effectiveness over time.

Objectives substantively influence decisions and management strategies. Objectives should incorporate social, economic, and/or ecological values of stakeholders and reflect the value of learning over time. To be useful as guides for decision making and evaluation, objectives should be specific and unambiguous, measurable with appropriate field data, achievable, results-oriented, and applicable over the timeframe. Objectives can be qualitative or quantitative; quantitative objectives can be easily measured.

### Directions

The purpose of this exercise is to give LLAC members a chance to indicate their initial level of support for the draft objectives, identify technical questions regarding each individual objective, suggest alternative text or objectives, and offer general comments. Any technical questions posed and proposed alternatives can be discussed at the 1/13/10 meeting. The results will be collated for review by LLAC. Responses will remain anonymous.

*Note:* At the 12/17/09 LLAC meeting, the group considered options for discussing potential walleye population objectives. These included (1) identifying questions pertaining to individual objectives and discuss at 1/13/10 meeting (5 committee members preferred this option); (2) indicate initial level of consensus and identify questions pertaining to individual objectives (1 committee member preferred this option); and (3) through electronic polling indicate level of consensus, questions regarding draft metric, and general comments (10 committee members preferred this option). As a consequence of this discussion, a survey was developed and a survey link was sent to LLAC members and alternates for use between 12/29/09 to 1/6/10. At the request of a LLAC member who was not able to access the survey during this period, the link was reactivated from 1/7/10 to 1/11/10.

One LLAC member/alternate did not participate in the survey but sent the following email message. *“I DO NOT APPROVE THE SURVEY HOPE THAT IS WHAT YOU RECEIVED.”*

Survey material is in bold font; responses follow.

**Please indicate whether you are a LLAC member or alternate.**

Member: 8

Alternate: 2

**1. Gill Net Catch Rates: 7.5 - 8.87 walleye per net or higher.**

**Note that this long-term average will vary with annual recruitment rates. This range represents the 2<sup>nd</sup> – 3<sup>rd</sup> quartile and would characterize a good/above average walleye fishery. Refer to Leech Lake Population Metrics (pp. 8 – 9).**

1. I like it	3
2. I like it with a few reservations	1
3. I'm neutral	0
4. I don't like it but I won't stand in the way of the wisdom of the group	0
5. I have questions about the metric proposed	0
6. I have questions about the methodology for measuring the proposed objective	1
7. There are problems that need sorting out before proceeding	4
Skipped question	1

**Questions regarding the metric or how it is obtained?** No comments

**Suggest alternative text for this objective.**

8. Since the gill net capture rate describes only relative abundance, I offer that this metric would be more meaningful if there was a targetted size component in this objective. For instance, based upon historical length-frequency distributions in Figure 5 there could be a target range of 45-65% of the GN catch should be < or = 15" to address a desirable size structure (was 50% less than 15" in current objectives). Or, if one wants to look at size structure in relation to the PSL (18-26") there could be a target range of 60-80% of the GN catch < 18".

7. This metric has kind of "morphed" from discussions when we first presented this info to group. 7.45 is mean 8.8 is the third quartile We might end up with "GN CPUE 8.8 or higher" right now what we're really saying is 7.5 or higher

**General comments.**

9. There's too much noise in CPUE lift counts. To set an acceptable level at 7.5 to 8.8 is too "lean", it will need to be brought up a little. Even Dr. Anderson feels there's too much noise in lift counts.

8. This objective applies to Leech Lake as a whole. However, Figure 4 in the Walleye Population Metrics indicates that catch rates have been tracked separately for the main lake and the Western bays. Historically, capture rates in the W. bays have been typically lower than in the main lake, sometimes by wide margins. Concern: should there be separate targets for the two areas since it appears possible that the W. bays could conceivably decline undesirably but the overall rate for the whole lake could still meet the target range if the capture rate in the main lake is high enough to pull up the average. Do we have any information on the movement of walleye between the main lake and the W. bays? I wonder if they will move between basins in response to forage (y. perch) abundance? The GN catch rates of yellow perch have been typically higher in the W. bays.

2. I feel that we are not at that point yet and there is a need for discussion if these are the best numbers to shoot for. I personally would rather be at 11.0 on the high end and around 8.0 to 8.25 on the low end to reach full carrying capacity for a watershed of 126,000 acres. If we get to a red flag at below 7.50 at least there will be a strategy in place to safe guard the population.

**2. Female Spawning Stock Biomass: 1.25 - 1.75 pounds per acre.**

**Note that this objective is the same as in the 2005 plan. This seems to be reasonable level and appears to be working. This level strikes a balance between having enough spawners to produce eggs and fry vs too many large adult fish in population *possibly* affecting recruitment and density dependent parameters such as decreasing growth rates and increasing age of maturity. Female spawning stock biomass will also be considered and addressed in the statewide discussions on special regulations. Refer to Leech Lake Population Metrics (p. 12).**

1. I like it	4
2. I like it with a few reservations	0
3. I'm neutral	1
4. I don't like it but I won't stand in the way of the wisdom of the group	0
5. I have questions about the metric proposed	0
6. I have questions about the methodology for measuring the proposed objective	0
7. There are problems that need sorting out before proceeding	4
Skipped question	1

**Questions regarding the metric or how it is obtained?**

8. This metric is indirectly generated by application of the Qabg model to GN catches, and I am not yet confident in the reliability of this model. However, I support the DNR's use of the model to further evaluate it and address its uncertainties. Increased sampling and improved sampling methods appear to be key to accomplishing this.

7. No

**Suggest alternative text for this objective.**

7. NO

## **General comments.**

9. What was the spawning stock biomass at Red Lake??

8. Female spawning stock biomass certainly plays a role in walleye population dynamics, but that role is not particularly clear. Biologists know that there are many factors affecting growth and survival of young walleye beyond total egg deposition. Given the right conditions a relatively low number of spawners can produce a relatively strong year class and vice versa. It seems logical that the extremes of spawner biomass should be avoided (too few and too many) for obvious reasons, but what does the mid-range portion of spawner biomass really mean? In the Leech Lake Walleye Population metrics, a comparison of Figures 7 and 3 suggests that although spawner biomass estimates were within or even exceeded the proposed target range from 1998 through 2006, GN catch rates remained below the long term mean and even declined steadily from 2001 to 2005. (Other factors such as competition among young walleye and predation on them, both affecting their survival, certainly could have played a role.) Figure 8 also suggests that delayed maturity for females could also have been a factor.

7. This is the tie to regulation, we will stress that in discussion.

**3. Biological Performance Indicators: BPIs are not approaching “stress levels.”**  
**Note that these metrics could be used to indicate if “stress” levels are being approached. “Hard” or quantitative objectives may not be desirable. These indicators would serve as “red flags” that would result in additional consideration or evaluation in the subsequent year. Refer to handout.**

**Key BPIs include:**

- 1. Female length at 50% maturity: threshold 440 mm (17.3 inches)**
- 2. Female age at 50% maturity: threshold 4 years of age**
- 3. Female age diversity: threshold 0.6 (Shannon index to age 15 years)**

1. I like it	4
2. I like it with a few reservations	1
3. I'm neutral	0
4. I don't like it but I won't stand in the way of the wisdom of the group	0
5. I have questions about the metric proposed	2
6. I have questions about the methodology for measuring the proposed objective	0
7. There are problems that need sorting out before proceeding	1
Skipped question	2

**Questions regarding the metric or how it is obtained?**

10. Don't really understand it.

8. I am not sure how the Shannon diversity index is calculated to derive female age diversity. Can we please have an example?

**Suggest alternative text for this objective.** No comments

**General comments.**

8. In general, it appears to me that these potential stress indicators would be useful as 'red flags' for female spawning stock. The length and age at maturity seem reasonable and Figure 8 indicates that 50% maturity occurred up to a year earlier during the population decline from 2001-2005 as growth (expressed as mean length for both sexes in Figure 6) increased at age 3.

7. I'm not dialed in on using this metric for objective if rest of the group is uncomfortable using it. We (DNR) will be looking at these metrics regardless, but we don't have to have them as objectives in the plan. The wording and the way we use this (these) metrics is a little softer than we might need for an objectives.

**4. Year Class Strength: Average or above average strength year class is produced every three years.**

**Refer to Leech Lake Population Metrics (p. 5).**

1. I like it	3
2. I like it with a few reservations	1
3. I'm neutral	1
4. I don't like it but I won't stand in the way of the wisdom of the group	0
5. I have questions about the metric proposed	0
6. I have questions about the methodology for measuring the proposed objective	1
7. There are problems that need sorting out before proceeding	3
Skipped question	1

**Questions regarding the metric or how it is obtained?** No comments

**Suggest alternative text for this objective.** No comments

**General comments.**

8. Since year class strength and the resulting YC strength index can occur for a walleye cohort up to age IV in the gill nets, there can be a considerable delay until this objective can even be observed. If below average year classes ultimately occur for years 1, 2 and 3, we could be out in year 7 before we know it. The worst case scenario is that years 1-3 are followed by poor year classes in years 4-6. While I do not see any evidence of that happening from the historical data, it could happen and set the fishery back for years. Obviously, the sooner we can assign a reliable year class strength the greater the probability that we can react as quickly as possible with appropriate management actions. Using predicted year class strength estimates from both trawl and GN catches should help forestall a worst case scenario, but this predictor can be in error about 40% of the time.

2. It's fine to look at computer averages, but weather, cold water, fluctuating water levels can alter year classes. Suggesting that the cormorant situation is controlled can also be another factor of strong year classes.

**5. Creel Census Metrics (Note that there are 5 different options for creel census metrics. )**  
**This objective measures a “product” - catchable size walleyes during the open water season. Not all of the four options described below are necessary for this objective.**

**5a. All Angler Harvest Rate: 0.10 walleye/hour. Refer to Leech Lake Population Metrics (p. 16).**

- **Pro- This would allow comparison to long term data.**
- **Con- This measure is directly affected (lowered) by any special/experimental regulation. This measures all anglers even if fishing for muskies, bass, and crappies.**

1. I like it	3
2. I like it with a few reservations	0
3. I'm neutral	0
4. I don't like it but I won't stand in the way of the wisdom of the group	1
5. I have questions about the metric proposed	1
6. I have questions about the methodology for measuring the proposed objective	0
7. There are problems that need sorting out before proceeding	4
Skipped question	1

**Questions regarding the metric or how it is obtained?**

7. No

**Suggest alternative text for this objective.** No comments

**General comments.**

8. I would not support using 'all angler harvest rates' to assess walleye population objectives and would prefer to use a target harvest rate. I am not particularly concerned about historical comparisons since in Figure 11 there are only 5 earlier years for all angler rates (1965-67 and 1984-85), and both rates have been used in 8 years since 1991.

7. I much prefer the Target harvest rate over this one, with such a diverse fishery as Leech Lake. Why include hours fishing for Musky lowering the catch rate for walleye.

2. During creel census, it's imperative that the walleye count/catch rate is monitored separately rather than thrown into one model of catch rate. The reason for this group's management recommendations was geared around walleye long term discussions, with very little emphasis on other species to this point.

**5b. Target Harvest Rate: 0.2 walleye/hour. Refer to Leech Lake Population Metrics (p. 16).**

- **Pro- This is a measure of harvest for anglers actually fishing for walleye. Harvested fish are actually counted and measured by the creel clerk and it doesn't rely on angler recall.**
- **Con- This metric is not as good as other options for historical comparisons. Do we want a harvest rate (harvest goal)?**

1. I like it	2
2. I like it with a few reservations	1
3. I'm neutral	0
4. I don't like it but I won't stand in the way of the wisdom of the group	1
5. I have questions about the metric proposed	1
6. I have questions about the methodology for measuring the proposed objective	1
7. There are problems that need sorting out before proceeding	3
Skipped question	1

**Questions regarding the metric or how it is obtained?**

7. No

**Suggest alternative text for this objective.**

7. No

6. 0.3 walleye/hour.

**General comments.**

8. Harvest rate is a 'bird in the hand' observation. Personally, I do not support the inclusion of angler recall in censusing sport fishermen. It is just not verifiable and this metric relies on being consistent for angling parties as well as across the season and between years, and that is not a concession I am willing to accept.

7. This is really the only creel metric we really need in my opinion. Others could be substituted if the group feels so inclined, but i would put more weight on this one.

6. I think that a very good fishery would be one with a harvest rate approaching 1 fish for every 3 hours of fishing (0.3 walleye/Hour).

**5c. Target Catch Rate: 0.5 walleye/hour. Refer to Leech Lake Population Metrics (p. 17).**

- **Pro - This is a measure of catch for anglers specifically fishing for walleye. This is a measure and goal that is not harvest orientated but focuses on the catch rate. Regulations influence catch and harvest rates.**
- **Con- This metric relies on angler recall. It includes released fish that might be too small to be acceptable and released fish due to experimental regulations. Reported rates may be inflated due to inaccurate recall; during a hot bite, anglers may not have accurate recall. Creel clerks don't actually see these fish.**

1. I like it	0
2. I like it with a few reservations	3
3. I'm neutral	1
4. I don't like it but I won't stand in the way of the wisdom of the group	1
5. I have questions about the metric proposed	1
6. I have questions about the methodology for measuring the proposed objective	0
7. There are problems that need sorting out before proceeding	3
Skipped question	1

**Questions regarding the metric or how it is obtained?** No comments

**Suggest alternative text for this objective.** No comments

**General comments.**

8. Since this metric relies on angler recall, I am not in favor of using it.

7. We will have this information and look at it anyway, but the recall question, and not actually having all the fish observed and counted by a creel clerk make it less valuable. I prefer it to All Angler harvest rate.

6. As stated in the "con" section, this metric relies on hearsay information from the angler. In most cases the information can be inflated, and there is not way to know with certainty about the actual number of fish caught. It is highly variable.

**5d. Total Walleye Harvest: 140,000 pounds of walleye per year. Refer to Leech Lake Population Metrics (p. 15).**

- **Pro – The total harvest or “yield” is measurable and can estimate what might be sustainable.**
- **Con – This metric is not comparable to earlier years because of the variable use of special regulations. Special regulations are used to reduce harvest of highly reproductive fish. Do we want a goal based on harvest?**

1. I like it	0
2. I like it with a few reservations	1
3. I'm neutral	3
4. I don't like it but I won't stand in the way of the wisdom of the group	1
5. I have questions about the metric proposed	0
6. I have questions about the methodology for measuring the proposed objective	0
7. There are problems that need sorting out before proceeding	4
Skipped question	1

**Questions regarding the metric or how it is obtained?** No comments

**Suggest alternative text for this objective.** No comments

**General comments.**

8. Total harvest is a product of harvest rate, average weight of walleye harvested, and angler effort. Since all of these values are being measured in a creel census it is a useful value. However, because of the potential effects of angler behavior (i.e catch and release practices), weather conditions, expenses and harvest regulations on total harvest, I do not value it as important as harvest rate as a measureable objective.

7. We will have the information from our creel. It is valuable information, but does not need to be an objective. We will look at it anyway. It's use as an objective is probably most useful in working on regulations. If we didn't have a regulation and were "pushing the system too hard with harvest" (approaching 200,000 pounds) then this would probably be a very important metric.

2. I don't think we know what the safe harvest is since we are not near carrying capacity for walleyes in Leech Lake. There is a chance in the next couple of years, with a sustainable population, that a safe harvest level can be realized and therefore set as a standard of harvest as long as the cormorant population is controlled and kept at low numbers. Without this control there can only be raw estimates of harvest.

**5e. Proportion of fish in slot (protected slot may change): 30 - 35%. Refer to Leech Lake Population Metrics (p. 18)**

- **Pro – Catch and release protect female fish. Protecting 1 of 3 fish caught seems to be a reasonable approach.**
- **Con -**

1. I like it	2
2. I like it with a few reservations	0
3. I'm neutral	1
4. I don't like it but I won't stand in the way of the wisdom of the group	1
5. I have questions about the metric proposed	3
6. I have questions about the methodology for measuring the proposed objective	0
7. There are problems that need sorting out before proceeding	2
Skipped question	1

**Questions regarding the metric or how it is obtained?**

7. No

6. Can the slot limit actually prove to be suppressive on the population, i.e. cannibalization, and might it also prove wasteful of a fish in the slot which must be released but will die due to hooking damage?

**Suggest alternative text for this objective.**

7. No

6. Maybe have the regulation changed to "only 1 fish may be possessed over 18 inches".

**General comments.**

9. ??? Do we need a slot???

8. I do not favor this as a creel census derived metric since it is dependent upon using angler recall and is not verifiable. And, the proportion of fish in the slot can also be assessed in the gill net surveys. If this metric has sufficient support I feel it should come from the GN surveys and be expressed as an acceptable portion of the population sampled. Based on the GN catches in 2008 and 2009, the values were 28.4% and 26.1% of the walleye were in the PSL of 18-26".

7. If we were going to have a size metric it might be better coming from the Gill Net, not the creel. Dealing with fish not actually seen by the clerk.

6. I have heard anglers complain they can only catch fish in the slot and cannot keep any. This would allow them to harvest one fish if they desired. It would also protect spawner sized walleye.