



### Mary Lake, Langlade / Oconto Co. - Fishery Survey Summaries

**2022:** Mary Lake, Langlade Co.: Spring boom shock run and summer fyke netting to monitor fishery, last USFS fyke survey work was 2016.

**Spring Boom Shock Run (5-31-22):** Clear warm and very windy night. Heavy bug hatch. Water visibility was low on the E and NE shore from a very strong W wind roiling sediment. Conductivity was very high which made capture efficiency drop off a bit for bass. Overall, a good catch of fish. Bass were actively on nests near downed wood along the USFS shoreline. Bass catch rate was on the lower end of Mary Lake surveys. However, Mary is known historically to be a high-density bass lake and the catch rate of 33/hr is still a good abundance compared to many lakes. Size in the sample was smaller than years past but a good mix of year classes was seen. The northern pike catch rate was low, but spring shocking is not the preferred method of surveying pike. An ice out netting would give a clearer picture on the pike population, and cabin owners report pike fishing is good with some large fish present. Bluegill were represented well with a moderate catch rate of 144/hr. Size distribution was very good, with an RSD-8 of 59% being one of the best in the national forest. Bluegill were grouped up in the shallows, but no beds were seen yet.

**Summer Fyke Netting (6-16-22 to 6-17-22):** 5 fyke nets were set around the lake. Summer fyke netting is the preferred way to sample bluegill populations. 876 bluegills were measured over 2 days. The bluegill catch showed moderate relative abundance (97/net-day), though PSD-6 was only fair at 44%. A 2<sup>nd</sup> modal peak at 8+” made up for the large abundance of 4” bluegills skewing PSD numbers smaller. Length distribution ranged from 3.1”-10.0”, with a nice peak of desirable harvest sized fish. The flat size distribution from 5”-7” indicates reduced year class strength in some years or high predation on those sizes. Some bluegills were sent to WDNR in Antigo for aging. Crappie were caught for the first time in a measurable abundance. Cabin owners indicated crappie were “bucket dumped” into the lake many years ago and likely maintained a background abundance for some time. This survey is the first clear indication that they have taken hold, however recruitment seems sporadic with only 2 weak year classes representing most of the fish. One of those year classes is of desirable size at around 11”. Crappie size distribution was 3.6”-11.6”. If the crappie population continues to trend up, they may start to negatively compete with other panfish for resources. Pumpkinseed catch rate was low at 6/net-day but size structure included some harvest sized fish up to 8.5”. Perch and rock bass catch rates were low, but size distribution was desirable. Cabin owners reported some large perch in the lake, and though summer netting isn’t the best time to sample perch, we found indications of some larger fish present.

**Summary:** The main objective of these surveys was to monitor the bass population and evaluate the bluegill population for signs of overharvest. Bass continue to be the dominate gamefish. Although relative abundance is down over previous years by half, there are still multiple year classes present to carry the fishery. For panfish, Mary Lake currently has an outstanding bluegill fishery with size structure not seen on many small lakes within the National Forest. The relative abundance and current size structure does not indicate that angler overharvest is occurring. On

small Forest lakes where over harvest influence is noticeable, there is a defined cut off in bluegills starting at 7". This is not the case on Mary, as most of the 8" and 9" fish would have been pulled out if harvest was an issue. By looking at the historic graph, the 2005 fyke survey did show signs of overharvest with a sharp drop in size structure at 7" (less than 5% of the catch was 7"+), but the catch rate was also more than double. With much higher abundance in 2005 (254/net-day), the drop in large fish then could also have been density dependent, as more fish compete for the same limited resources. By contrast the 2022 fyke survey shows a more balanced population of bluegills with strong peaks of preferred sized fish at 7"+. Cabin owners concerned about the bluegill fishery have suggested more restrictive limits on panfish. Under the current regulations the 2022 bluegill data does not suggest changes are needed, however more restrictive panfish regulations could add another layer of protection to help maintain the current size structure. Voluntary release of large male bluegills (best nest defenders) can also go a long way in conserving bluegill populations. USFS does not set state bag and length limits. Questions about state regulations should be directed to the WDNR fish biologist for that county.

**Figure 2. Comparison of Bluegill Length Frequencies - 2005 vs. 2016 vs. 2022  
Summer Panfish Netting - Mary Lake, Langlade Co.**

