# WISCONSIN DEPARTMENT OF NATURAL RESOURCES

## 2022 Spring Netting I Summary Report
## Pella Pond, Shawano County
300900



## Introduction And Objectives

In 2022, the Wisconsin Department of Natural Resources (DNR) conducted a spring netting survey of Pella Pond in order to provide insight and direction for the future fisheries management of this system. Primary sampling objectives of these surveys are to characterize species composition, relative abundance, and size structure. The following report is a brief summary of the activities conducted, general status of fish populations and future management options for Pella Pond.


## DNR Contact

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## Lake Information

Lake Acres:49
Max. Depth: 13.1
Public Access: 1 Boat Landing

## Regulations

Statewide Regulations except for Northern Pike which has a 2 bag limit and 26 inch minimum length requirement.

| SURVEY INFORMATION | | | | | | |
|---|---|---|---|---|---|---|
| **Site Location** | **Survey Dates** | **Water Temperature (° F)** | **Target Species** | **Gear** | **Number of Nets** | **Effort** |
| Pella Pond | 4/08/2022 - 4/12/2022 | 37 - 40 | Northern Pike | Fyke Net | 4 | 15 net nights |

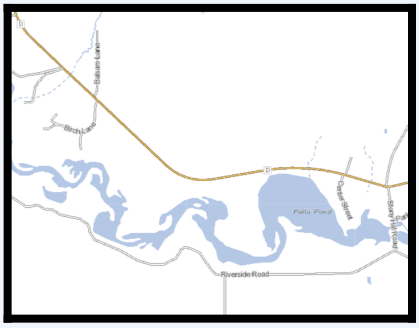
## Metric Descriptions

- **Catch per unit effort (CPUE) is an index used to measure fish population relative abundance**, which simply refers to the number of fish captured per unit of distance or time. For netting surveys, we typically quantify CPUE by the number and size of fish per net night. For electrofishing, we quantify CPUE as the number caught per mile of water electrofished. CPUE indexes are compared to statewide data by percentiles and within lake trends. For example, if a CPUE is in the 90th percentile, it is higher than 90% of the other CPUEs in the state.
- **Proportional Stock Density (PSD) is an index used to describe the size structure of fish populations.** It is calculated by dividing the number of quality size fish by the number of stock size fish for a given species. PSD values between 40 - 60 generally describe a balanced fish population.
- **Length frequency distribution (LFD) is a graphical representation of the number or percentage of fish captured by half-inch or one-inch size intervals.** Smaller fish (or younger age classes) may not always be represented in the length frequency due to different habitat usage or sampling gear limitations.
- **Mean age at length is an index used to assess fish growth.** Calcified structures (e.g., otoliths, spines or scales) are collected from a specified length bin of interest (e.g., 7.0-7.5 inches for bluegill). Mean age is compared to statewide data by percentile with growth characterized by the following benchmarks: slow (<33rd percentile); moderate (33rd to 66th percentile); and fast (>66th percentile).

### Survey Method

- Pella Pond was sampled according to spring netting I (SNI) protocols as outlined in DNR Fisheries Monitoring Protocols. The primary objective of the spring fyke netting I survey is to count and measure adult Walleye and northern pike, and mark adult walleyes and northern pike to estimate abundance. Other species of fish may be sampled during the survey, but are considered by-catch as part of that survey.
- Fyke nets were deployed in areas of the lake and river that contained spawning habitat or were likely travel areas for northern pike. All newly captured individuals were marked with a fin clip. Aging structures (spines) were taken from a sample of northern pike for age and growth analyses.

| RELATIVE ABUNDANCE — CATCH PER UNIT EFFORT (CPUE) | | | | | |
|---|---|---|---|---|---|
| **Species** | **Protocol** | **Total Number Captured** | **CPUE** | **Units** | **Statewide Percentile** |
| Northern Pike | Spring Netting I | 274 | 18.3 | fish/net night | 75th |
| Yellow Perch | Spring Netting I | 8 | 0.5 | fish/net night | 15th |



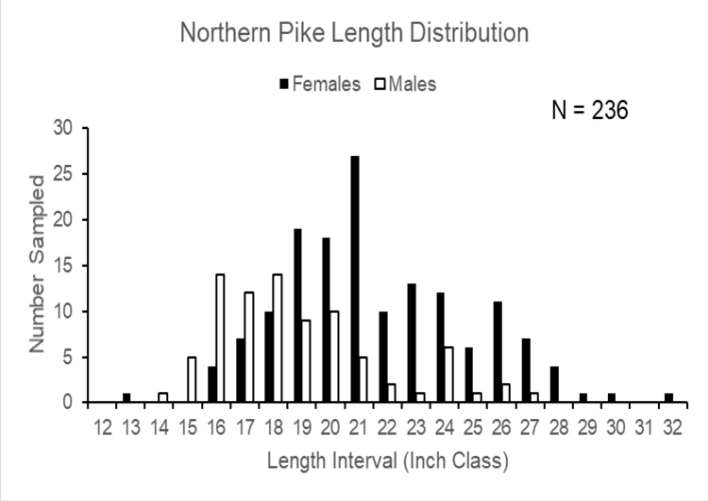
Map of Pella Pond

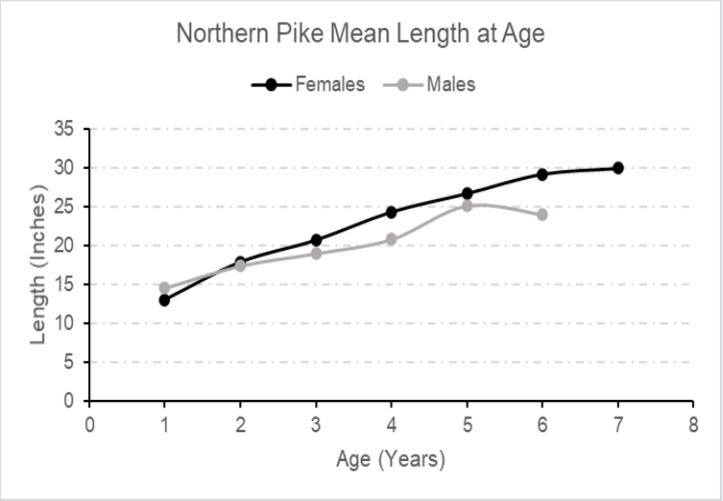
## Northern Pike

- Northern pike (*Esox lucius*) are a common predatory fish species found across many Wisconsin waterbodies. Northern pike spawn in areas of emergent vegetation at approximately 34-40°F water temperatures. Fyke netting is the preferred sampling gear for northern pike. All results presented for northern pike are from spring fyke netting surveys.

**YEAR SIZE STRUCTURE METRICS**

| Total Number Measured | Average Length (inches) | Length Range (inches) | Stock and Quality Size (inches) | Stock Number | Quality Number | PSD | Percentile Rank | Size Rating |
|---|---|---|---|---|---|---|---|---|
| 236 | 21.1 | 13.0 - 32.4 | 14.0 and 21.0 | 235 | 111 | 47 | 45th | Low |




**RELATIVE ABUNDANCE (CPUE = NUMBER PER NET NIGHT)**

| Total Sampled | 1993 | 2009 | 2022 | 2022 Statewide Percentile Rank | 2022 Abundance Rating |
|---|---|---|---|---|---|
| 236 | 15.8 | 12.8 | 15.7 | 94th | High |

**SIZE STRUCTURE (PSD) TRENDS**

| PSD by Year | | |
|---|---|---|
| 1993 | 2009 | 2022 |
| 78 | 62 | 47 |

**2022 GROWTH METRICS**

| Number Sampled | Length Bin (inches) | Sex | Mean Age | Age Range | Percentile Rank | Growth Rating |
|---|---|---|---|---|---|---|
| 5 | 18.0 - 18.9 | M | 3 | 2 - 4 | 73rd | Moderate - High |
| 4 | 18.0 - 18.9 | F | 2.5 | 2 - 3 | 76th | Moderate - High |
| 4 | 21.0 - 21.9 | M | 4.5 | 4 - 6 | 33rd | Moderate |
| 6 | 21.0 - 21.9 | F | 3.2 | 3 - 4 | 64th | Moderate |
| 2 | 26.0 - 26.9 | M | 5 | 5 | 66th | Moderate |
| 4 | 26.0 - 26.9 | F | 4.5 | 4 - 5 | 65th | Moderate |

**ADULT ABUNDANCE (POPULATION ESTIMATE)**

| Marked | Captured | Recaptures | Population Estimate (95% CI) | Number per Acre |
|---|---|---|---|---|
| 240 | 274 | 34 | 736 (481 - 1567) | 15 |

## Species Summary

- Pella Pond supports a high density northern pike population with 2022 catch rates at 15.7 fish per net night. A catch rate of 15.7 per net night ranks in the 94th percentile when compared to northern pike catch rates statewide. When compared to past surveys, the 2022 northern pike catch rates have been increasing over the past 30 years.
- Size structure of northern pike in the 2022 survey was moderate with a PSD of 47 which ranks in the 45th percentile when compared to lakes statewide. The length ranges of male (14 - 27 inches) and female (13 - 32 inches) northern pike are within the ranges commonly found statewide; having a PSD between 40-60 typically shows that there is a balanced population of different size classes. Size structure trends over the last several surveys show a slight decrease in northern pike size structure.
- Aging structures were collected from 86 individuals, and used to compare growth rates statewide. However, the age and growth information collected was used to assess growth within Pella Pond and can be used in analyses to compare growth of northern pike among future surveys in the Pella Pond.

## Full Summary

### Northern Pike

The Pella Pond supports a high density northern pike population with a moderate size structure. Although there were individuals captured up to 32 inches, the majority of the sample consisted of 16 - 28 inch fish. The survey found both male and female northern pike greater than 26 inches. The age and growth analyses appears to be show moderate growth for both male and female northern pike. Future survey work could provide the data needed to develop a new regulation proposal.

### Habitat

Areas of Pella Pond that have existing emergent vegetation should be enhanced or undisturbed and interested landowners should consider promoting emergent vegetation within the littoral zone. A drawdown in the summer of 2021 helped restore many types of emergent and submergent vegetation which shortly thereafter began to grow throughout the pond. Prior to the drawdown the pond did not have much vegetation and the woody debris was limited. Biologists believe that the increased vegetation will provide habitat suitable for panfish species and enhance survival and recruitment. One habitat project occurred n the winter of 2021-2022, the Pella Sportsman's Club constructed and placed several tree drop structures in the hopes of providing habitat and spawning grounds for the black crappie and yellow perch. Protection of the shoreline and upriver habitats should be maintained and preserved as well.

### Other Fish Species and Management Activities

Pella Pond supports a fishery similar to a riverine system, as it is an impoundment of the Embarrass River. Dam maintenance and repairs were needed in the summer of 2021, resulting in lower water levels over a couple months. Surveys were conducted to determine if there was a decline of fish species preceding the drawdown. The results of the survey showed similar or increased population metrics when compared to past surveys.

Historically, annual stockings of black crappie and yellow perch have taken place with funds provided by the Pella Sportsman's Club. Black crappies and yellow perch were sampled in low numbers, which have been a species managed for and preferred by local anglers. Golden redhorse, silver redhorse, shorthead redhorse, white sucker, black bullhead and common carp were present in the surveys. Redhorse and white sucker provide an excellent food source for northern pike and smallmouth bass, and explains the healthy population of both within the Pella Pond. Electrofishing is a more effective survey tool when assessing smallmouth bass populations and will be explored during the next survey.