

## **Young-of-the-year yellow perch survey in nearshore waters of Lake Michigan, 2016**

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An annual survey of young-of-the-year (YOY) yellow perch along the Lake Michigan shoreline was conducted using a beach seine and micromesh gillnets from 8/23/16 to 9/22/16.

### *Seining assessment:*

The seining survey was carried out from 8/23/16 to 9/12/16. We used a standard 25-foot beach seine which was pulled by two persons in shallow nearshore waters of Lake Michigan. In general, each pull consisted of a 100-foot sweep either parallel to the beach or perpendicular to the beach along piers and jetties depending on the depth and feasibility of seining. At each station, depending on conditions, two 100-foot pulls were attempted unless algal bloom limited our ability to effectively pull the net, especially when sampling around the jetties.

A total of fourteen stations were sampled from Sheboygan to Kenosha (Sheboygan – 3, Ozaukee – 2, Milwaukee – 5, Racine – 2 and Kenosha – 2). Seining conditions during the sampling period varied among different sites on different days depending on the wind direction. Some sites were very difficult to seine due to cladophora clogging the net while others were clear and easy to sample. We avoided a site in Port Washington located on the south side of the Power Plant due to extreme amount of cladophora. Instead we sampled inside the Port Washington harbor along the shallow edge. Similarly, Meyers Park in Racine had a lot of cladophora. Furthermore, the beach in the park was redesigned in the past summer. So, the water was very turbid nearshore making it difficult for seining. The water temperature during the survey was in the upper 50s in late August, and upper 60s in early September.

We attempted to sample each site twice during the sampling season. However, sometimes due to excess cladophora algae we were able to take one sample only or a shorter pull. A total of 51 seine hauls were taken in fourteen sites for a total of 3,770 ft. of seine haul. The number of sites sampled varied among the counties with total length of 650ft. seine haul in Kenosha, 650 ft. in Racine, 1,120ft. in Milwaukee, 400ft. in Ozaukee and 950 ft. in Sheboygan. We captured only 2 YOY yellow perch yielding a catch per effort (CPE) of 0.05 YOY yellow perch per 100 foot seine haul (Figure 1).

We caught 188 YOY yellow perch in 2015 survey compared to only two in 2016. However, of the 188 YOY yellow perch 121 were caught in a single pull at Racine North

Pier. Very few young perch were caught in the seining effort in 2016. A total of 20 species of fish were captured during the seining survey (Table 1). Young-of-the-year and juvenile alewife dominated the catch followed by Spottail shiner, sand shiner and YOY/yearling bloater chub. We had a total of 77 young bloater chubs in 2016, and 86 young bloater chub in 2015. We used to catch young bloater chub very sparingly in the seine haul in the past compared to their numbers in the last two years.

*Micromesh gill net assessment:*

Generally two index stations, Shoop Park (Racine Co.) and Doctors Park (Milwaukee Co.), have been used for setting micromesh gill net for our annual survey. On 9/15/2016, because of the rough weather conditions, we used our larger aluminum boat instead of the usual inflated raft and set a 300 ft gill net for one night at the northern end of Bradford beach. The net was set in nearshore waters at depths ranging from 4.8 ft. 5.1 ft. and fished overnight. We used three 100-foot long and 5-foot deep monofilament net panels tied together consisting of 12mm stretch mesh. We caught 418 YOY yellow perch. The water temperature was 64 F. The water was clear. The bottom substrate consisted of gravel and boulders. There was no submerged vegetation. Another similar gill net of 300 ft. long was set at the same time south of the harbor off of the FBI building in St. Francis and captured five YOY yellow perch ranging from 65mm to 71 mm. The water was slightly turbid with cladophora, and the water temperature was 65 F. The bottom substrate consisted of fine sand. On 9/21/2016 we lifted 200 feet of net fished for one night off Doctors Park. We caught only two YOY perch. The water temperature was 54 F and the water was very clear. The net was set at 10 ft. of water with gravelly and rocky bottom. A similar net was set on the south side of Shoop Park in Racine. The water was turbid with a lot of suspended algae and fine silt. Because of the rough weather condition we could not lift this net on the following day instead the net fished for two nights and was lifted on 9/22/2016. When we lifted the two ends of the nets had come closer to each other because of the current and wind dragging the net, and hence not fishing effectively. However, since the net stayed in the water for two nights, we doubled the effort for the CPE calculation purpose (200 ft. X 2). There was a lot of cladophora on the net. We caught thirty one YOY yellow perch in this net. The water temperature had dropped to 49 F due to possible upwelling effect. Two lifts were planned at each location - Shoop Park and Doctors Park, but we had to be satisfied with what we could do due to changing weather conditions.

Thus, four micromesh gill net lifts were taken on 9/15/16, 9/21/16 and 9/22/16 capturing 456 YOY yellow perch and two juvenile yellow perch. A total of eight species of fish were captured in these nets with alewife on the top followed by YOY yellow perch and round goby (Table 2). The majority of YOY yellow perch was caught in the gill net set at the north end of Bradford beach. The average total length of YOY yellow perch was 66.84mm. The catch per 100 ft. of gillnet was 38 YOY yellow perch (CPE=38) (Figure 2). The surface water temperature ranged from 49 °F to 65 °F during the sampling season.

Table 1. Number of fish caught in YOY yellow perch beach seining assessment (Lake Michigan shoreline from Kenosha to Sheboygan), WDNR - 2016.

<b>Fish species</b>	<b>Number of fish</b>
Alewife (YOY+juvenile)	2498
Gizzard shad	26
Bloater chub	77
Rainbow smelt	5
Emerald shiner	31
Common shiner	1
Spottail shiner	88
Sand shiner	82
Fathead minnow	10
Longnose dace	70
White sucker	20
Black bullhead	1
Banded killifish	5
Brook stickleback	1
Sunfish (YOY)	1
Rock bass (YOY)	10
Smallmouth bass	6
Largemouth bass	4
Yellow perch (YOY)	2
Yellow perch (juvenile)	1
Round goby (YOY+juvenile)	31
Unknown shiners	8

Table 2. Numbers of fish captured in the YOY yellow perch micromesh gillnet survey at index stations (Lake Michigan nearshore waters), WDNR – 2016.

<b>Species</b>	<b>Number of fish</b>
Alewife	515
Bloater chub	4
Rainbow smelt (adult)	3
Spottail shiner	6
Longnose dace	5
Smallmouth bass	1
Yellow perch (YOY)	456
Yellow perch (juvenile)	2
Round goby (juvenile/adult)	50

*Summary:*

Beach seining and micromesh gill net surveys were conducted at index sites similar to the previous years of sampling. We added two new locations to set micromesh gill net, one at the northern end of Bradford beach, a little bit south of the Linwood Avenue water treatment plant, and the other on the south side off St. Francis. Overall, the conditions for sampling were good except in some locations that had excessive algae. We met our goal in covering the area from Kenosha to Sheboygan and visiting each site at least twice. The nets were effective in capturing multiple species of fish. The CPE of beach seining effort was 0.05 YOY yellow perch per 100 ft. of seine haul while the CPE of micromesh gill net was 38 YOY yellow perch per 100 ft. of gill net. The average size of YOY yellow perch was 67 mm which is a healthy growth at the end of the summer. We had not seen the CPE as high as 38 YOY yellow perch for micromesh gill net catch in last ten years.

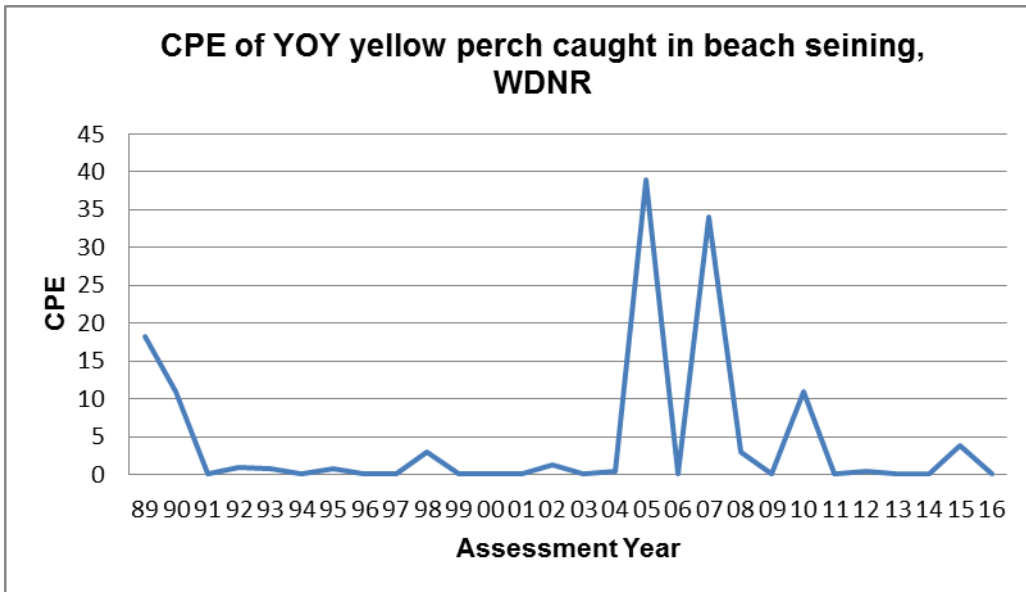


Figure 1. Beach seining catch per 100 ft of young-of-the-year yellow perch in nearshore waters of Lake Michigan, WDNR.

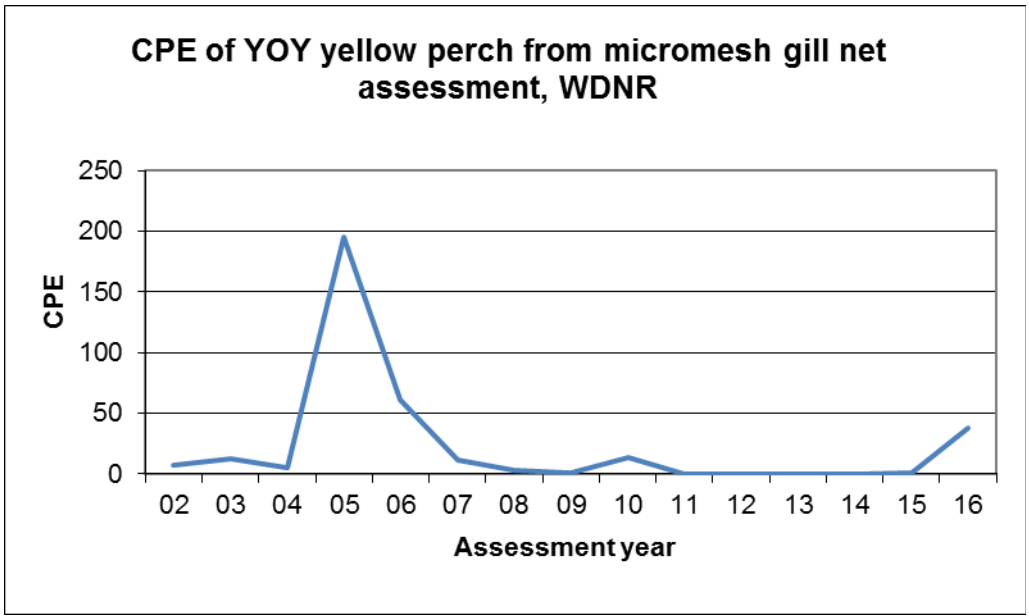


Figure 2. Micromesh gill net catch per 100 feet of young-of-the-year yellow perch in the nearshore waters of Lake Michigan, WDNR.