SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

Twin, Minnehaha County
LBS-Lake-204-000
2015

Lake Information

Name:	Twin	**Maximum Depth:**	21 Feet
County:	Minnehaha	**Mean Depth:**	11 Feet
Legal Description:	T105N-R52W Sec. 16-17, 20-21		
Surface Area:	304 Acres		

Surveys and Investigations

Survey methods used by gear type, date, and effort.

Gear	Date	Effort
std exp gill net	June 16, 2015	4 net-nights

Common Fish Species Present

Yellow Perch

Walleye

Black Bullhead

Terminology

Catch per unit effort (**CPUE**) refers to the relative abundance of a species. It is defined as the number of fish captured per unit of effort (i.e., number of fish captured per net-night or number of fish captured per hour electrofishing). In this report CPUE is typically given for only stock-length fish (see length categories table for stock lengths).

$$CPUE = \frac{number\ of\ fish}{effort}$$

Population size structure is quantified using the indices proportional size distribution of quality-length fish (**PSD**) and proportional size distribution of preferred-length fish (**PSD-P**). These indices indicate the proportion of stock-length fish that are equal to or greater than a given length. Minimum lengths for stock, quality and preferred length fish are given in the length categories table.

$$PSD = \left(\frac{number\ of\ fish \geq quality\ length}{number\ of\ fish \geq stock\ length}\right) \text{x } 100$$

$$PSD - P = \left(\frac{number\ of\ fish\ \geq preferred\ length}{number\ of\ fish \geq stock\ length}\right) \text{x } 100$$

Relative weight (**Wr**) is used to quantify fish plumpness. Relative weight is the ratio of what a fish weighs (W) compared to a length-specific standard weight (Ws) multiplied by 100. Relative weight values of 95-105 are commonly cited as optimum values, but values in the 80s are common during summer sampling in South Dakota.

$$Wr = \left(\frac{W}{Ws}\right) \text{x } 100$$

Confidence intervals (**CI**) are provided for many of the estimates calculated in this report. The confidence interval provides a range in which the true mean is expected to fall. For example, with an 80% CI we are 80% confident that the interval contains the true value.

Length categories include stock (**S**), quality (**Q**), preferred (**P**), memorable (**M**) and trophy (**T**). Length categories for most species have been defined based on a percentage of the world record length for that species. Some species mentioned in this report do not have defined length categories. Length categories for species used in this report are provided in the following table. Measurements are the minimum total length for each category and are reported in inches (in) and centimeters (cm).

	Stock		Quality		Preferred		Memorable		Trophy	
Species Name	(in)	(cm)	(in)	(cm)	(in)	(cm)	(in)	(cm)	(in)	(cm)
Bigmouth Buffalo	11	28	18	46	24	61	30	76	37	94
Black Bullhead	6	15	9	23	12	30	15	38	18	46
Black Crappie	5	13	8	20	10	25	12	30	15	38

	Stock		Quality		Preferred		Memorable		Trophy	
Species Name	(in)	(cm)	(in)	(cm)	(in)	(cm)	(in)	(cm)	(in)	(cm)
Blue Catfish	12	30	20	51	30	76	35	89	45	114
Bluegill	3	8	6	15	8	20	10	25	12	30
Bluegill X Gr. Sunfish Hybrid	3	8	6	15	8	20	10	25	12	30
Brown Bullhead	5	13	8	20	11	28	14	36	17	43
Burbot	8	20	15	38	21	53	26	67	32	82
Channel Catfish	11	28	16	41	24	61	28	71	36	91
Common Carp	11	28	16	41	21	53	26	66	33	84
Flathead Catfish	14	35	20	51	28	71	34	86	40	102
Freshwater Drum	8	20	12	30	15	38	20	51	25	63
Gizzard Shad	7	18	11	28						
Green Sunfish	3	8	6	15	8	20	10	25	12	30
Lake Herring	5	13	8	20	11	28	14	35	17	43
Largemouth Bass	8	20	12	30	15	38	20	51	25	63
Longnose Gar	16	41	27	69	36	91	45	114	55	140
Muskellunge	20	51	30	76	38	97	42	107	50	127
Northern Pike	14	35	21	53	28	71	34	86	44	112
Paddlefish	16	41	26	66	33	84	41	104	51	130
Pumpkinseed	3	8	6	15	8	20	10	25	12	30
Redear Sunfish	4	10	7	18	9	23	11	28	13	33
River Carpsucker	7	18	11	28	14	36	18	46	22	56
Rock Bass	4	10	7	18	9	23	11	28	13	33
Rudd	6	15	10	25	12	30	15	38	19	48
Sauger	8	20	12	30	15	38	20	51	25	63
Saugeye	9	23	14	35	18	46	22	56	27	69
Shorthead Redhorse	6	15	10	25	13	33	16	41	20	51
Smallmouth Bass	7	18	11	28	14	35	17	43	20	51
Smallmouth Buffalo	11	28	18	46	24	61	30	76	37	94
Spotted Bass	7	18	11	28	14	35	17	43	20	51
Striped Bass	12	30	20	51	30	76	35	89	45	114
Striped Bass Hybrid (wiper)	8	20	12	30	15	38	20	51	25	63
Walleye	10	25	15	38	20	51	25	63	30	76
White Bass	6	15	9	23	12	30	15	38	18	46
White Crappie	5	13	8	20	10	25	12	30	15	38
White Perch	5	13	8	20	10	25	12	30	15	38
White Sucker	6	15	10	25	13	33	16	41	20	51
Yellow Bass	4	10	7	18	9	23	11	28	13	33
Yellow Bullhead	4	10	7	18	9	23	11	28	14	36
Yellow Perch	5	13	8	20	10	25	12	30	15	38

Catch Summary of Stock Length Fish

Catch per unit effort (CPUE), proportional size distribution (PSD), proportional size distribution of preferred length fish (PSD-P), and relative weight (Wr) for species sampled in survey with 80% confidence interval (CI-80).

		Abundance		Stock Density Indices				Condition	
Gear	Species	CPUE	CI-80	PSD	CI-80	PSD-P	CI-80	Wr	CI-80
std exp gill net	Black Bullhead	45.0	16.9	100		70	5		
	Walleye	6.3	4.1	60	15	8		82	2
	Yellow Perch	53.5	24.2	99		5	2	103	1

10-Year Catch Per Unit Effort by Gear and Species

Catch per unit effort (CPUE) and average (Avg) of species across 10 years using different gear types.

		CPUE										
Gear	Species	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Avg
boat shocker (night)	Walleye								65.3			65.3
fall night EF-WAE	Walleye							21.5				21.5
large frame net	Black Bullhead						10.4	542.1	98.5			217.0
	Bluegill							1.5	0.1			0.8
	Green Sunfish						0.1	0.8	0.5			0.5
	Walleye						7.2	20.4	7.9			11.8
	Yellow Perch						11.1	3.8	0.5			5.1
std exp gill net	Black Bullhead						32.3	108.5	111.3	31.3	45.0	65.7
	Common Carp									0.3		0.3
	Walleye						25.0	10.0	30.7	11.3	6.3	16.7
	Yellow Perch						24.0	63.5	4.7	29.8	53.5	35.1

10-Year Size Structure and Condition Statistics by Gear and Species

Species proportional size distribution (PSD), proportional size distribution of preferred length fish (PSD-P), and relative weight (Wr) collected by different gear types across 10 years.

			Year									
Gear	Species	Index	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
boat shocker (night)	Walleye	PSD								2		
		PSD-P								2		
		Wr								103		
fall night EF-WAE	Walleye	Wr							88			
large frame net	Walleye	PSD						23	52	54		
		PSD-P						0	6	6		
		Wr						84	73	84		
	Yellow Perch	PSD						71	100	80		
		PSD-P						21	74	60		
		Wr						109	98	117		
std exp gill net	Walleye	PSD						13	40	36	60	60
		PSD-P						1	25	18	18	8
		Wr						84	74	88	82	82
	Yellow Perch	PSD						94	97	86	18	99
		PSD-P						38	54	79	8	5
		Wr						110	100	119	111	103

Length at Capture

Mean length at capture by age across years sampled, sample size (N).

Species: Walleye

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2015	40	191 (15)	297 (8)	378 (1)	394 (3)	425 (1)	419 (7)	441 (3)	558 (1)		638 (1)
2014	50	237 (7)	271 (1)	355 (11)	399 (3)	397 (16)	501 (5)	533 (1)	563 (3)	595 (2)	660 (1)
2013	97	189 (4)	294 (50)	347 (5)	385 (14)	481 (7)	536 (1)	535 (11)	555 (4)	543 (1)	
2012	55	218 (35)	310 (5)	358 (9)	475 (1)		544 (3)	541 (2)			
2011	112	248 (22)	324 (78)	407 (8)	480 (2)	487 (2)					

Species: Yellow Perch

		Mean Length (expanded sample number) at capture by age									
Year	N	1	2	3	4	5	6	7	8	9	10+
2015	214		228 (212)		298 (2)						
2014	119	161 (96)	261 (1)	228 (16)	294 (3)	333 (3)					
2013	14	171 (2)		274 (7)	283 (5)						
2012	127	185 (4)	248 (101)	265 (23)							

Fish Condition

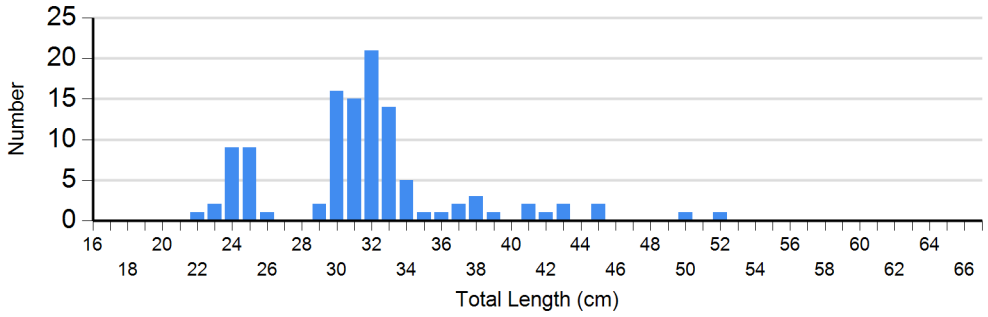
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

		Length Groups							
		S-Q		Q-P		P-M		M	
Species	Year	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)	N	Wr (SE)
Walleye Gill Net	2011	87	84 (0.5)	12	84 (2.2)	1	72	0	
	2012	12	74 (1.0)	3	72 (3.3)	5	76 (1.2)	0	
	2013	59	91 (0.6)	16	84 (1.4)	17	85 (1.5)	0	
	2014	18	86 (2.2)	19	83 (1.6)	7	70 (1.4)	1	57
	2015	10	86 (2.5)	13	79 (1.6)	1	78	1	68
Yellow Perch Gill Net	2011	6	101 (2.8)	54	110 (1.5)	34	112 (1.4)	2	110
	2012	4	99 (4.9)	55	102 (1.1)	67	99 (0.8)	1	108
	2013	2	110 (4.1)	1	120	11	121 (2.4)	0	
	2014	97	110 (1.2)	13	116 (2.6)	5	107 (4.8)	4	109 (1.3)
	2015	2	97	201	103 (0.7)	11	100 (1.6)	0	

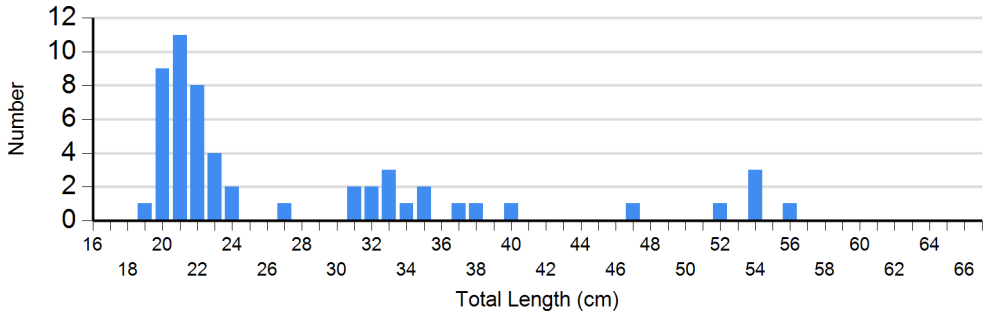
Length Frequency Distribution

Length frequency histogram of species sampled by year.

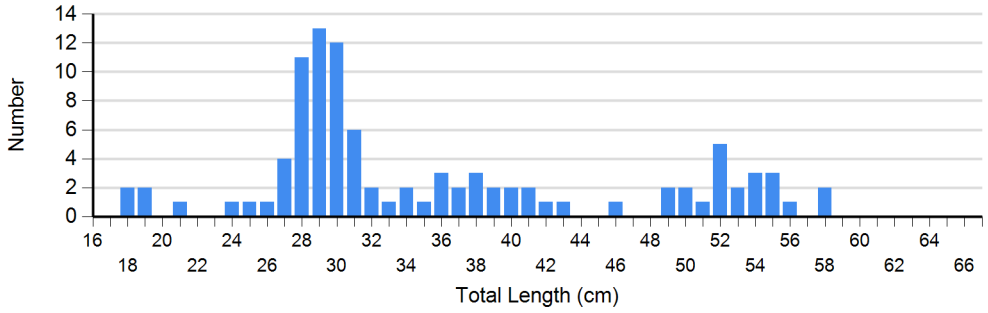
Species: Walleye
Gear: std exp gill net



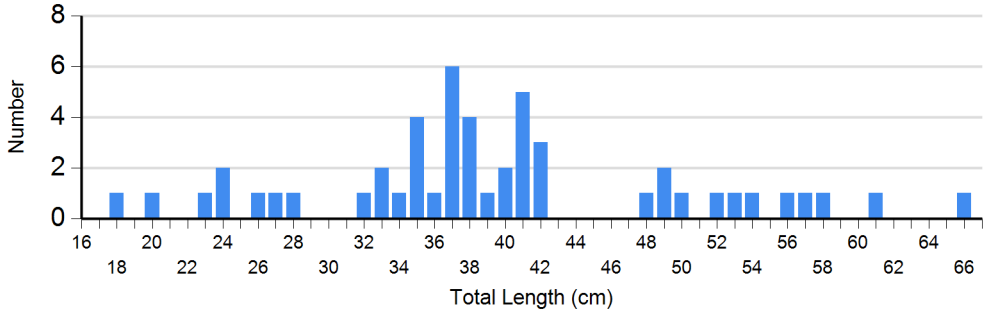
2011



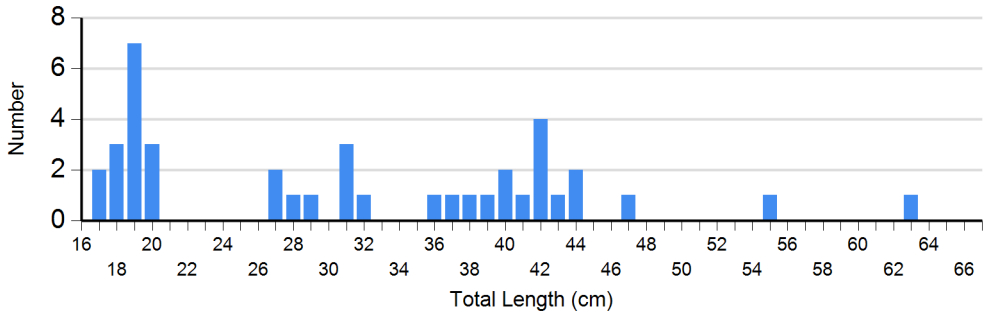
2012



2013

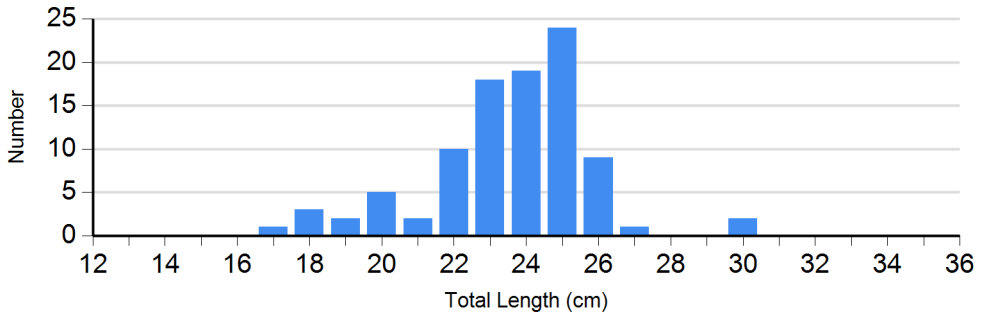


2014

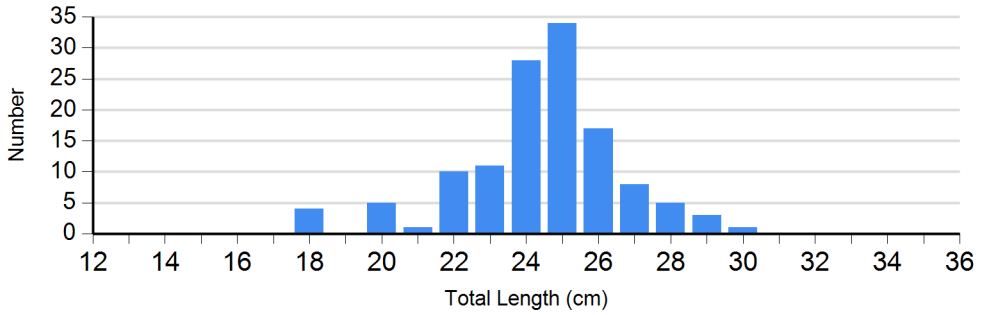


2015

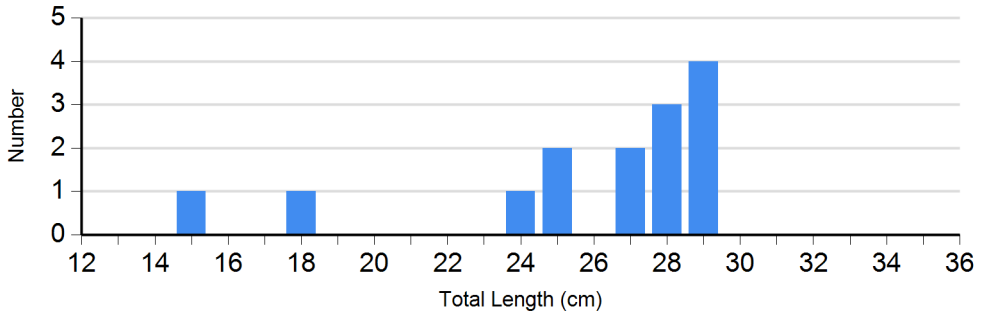
Species: Yellow Perch
Gear: std exp gill net



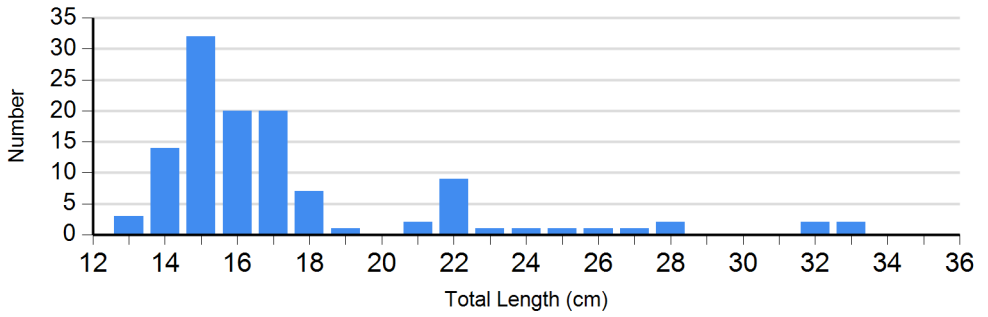
2011



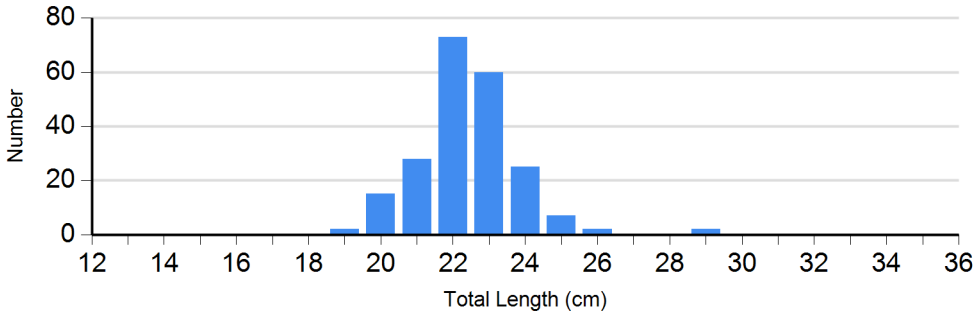
2012



2013



2014

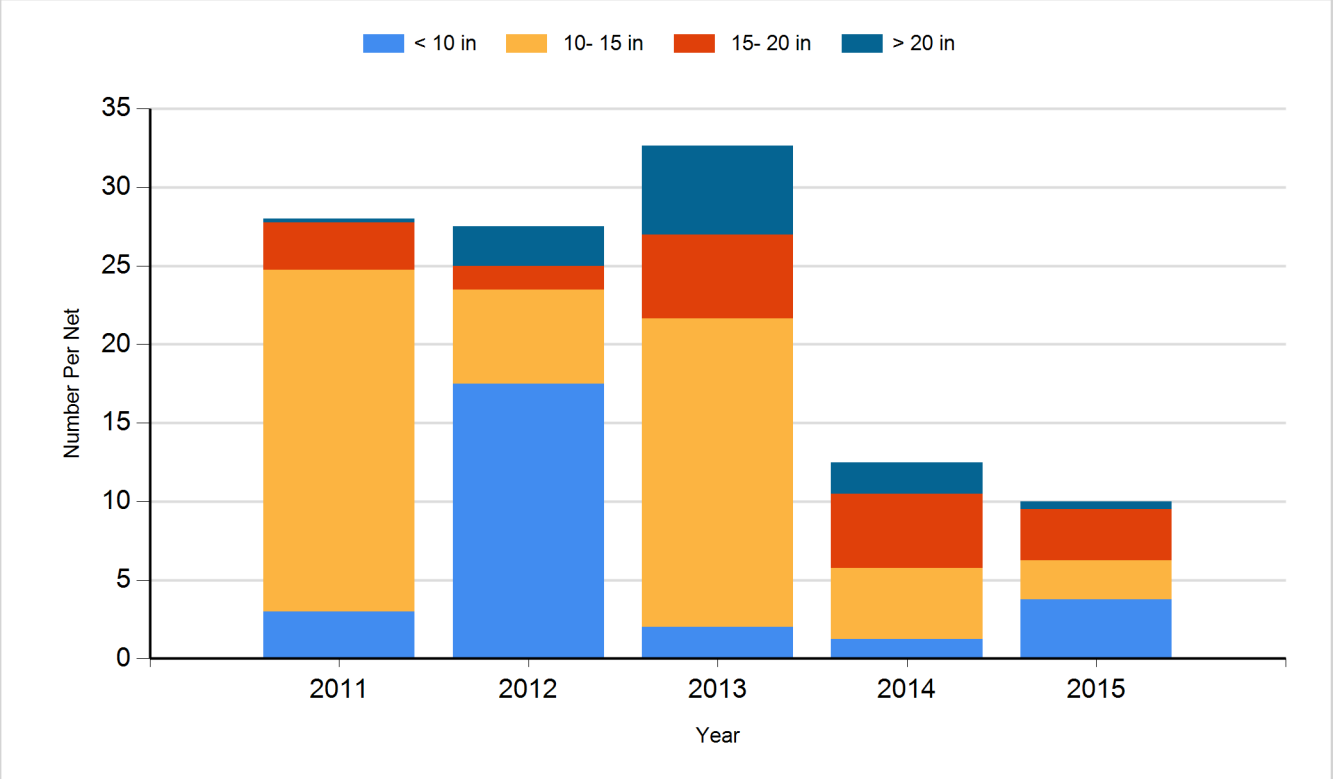

80
60
40
20
0
Number
12
14
16
18
20
22
24
26
28
30
32
34
36
Total Length (cm)

2015

Historic Fish Sizes and Relative Abundance

Size distribution per net by color for species sampled by year.

Species: Walleye
Gear: Gill Net



Species: Yellow Perch
Gear: Gill Net