

# Fisher Population Analyses 2016

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## **Abstract**

Harvest size and sex and age structure data were combined in population models to estimate the size of the fisher population in the northern third of Wisconsin. Population models produced estimates that totaled approximately 7,000 fishers in fall 2016 in the northern 1/3 of the state compared to the population goal of 9,200. A harvest of 985 fishers was recommended for the 2016 season by the Furbearer Advisory Committee, with approximately 60% of the harvest coming from central and southern Wisconsin.

## **Methods**

Trappers in all zones were required to register their fishers at a DNR station. In 2015, trappers were also required to surrender the skull of animals they caught. Date of harvest and harvest zone (Fig. 1) were recorded for each skull. A section of the lower jaw including the canine and fourth premolar was extracted from each skull. These samples were sent to Matson's Laboratory, Milltown, MT for processing and aging by counting annuli in the cementum of the fourth premolar.

Fisher population estimates for the 4 northern Fisher Management Zones were derived using the Minnesota Fisher Population Model that integrates data from harvest registration and carcass collections. Model simulated population trends were calibrated against zone-specific trends in fisher tracks observed on winter furbearer track surveys. To maintain a high level of correlation between simulated population trends and trends in winter track counts adjustments were made to the starting population size in the model in zones A and C in 2003; in zone C in 2008; in zones A, B, and D in 2009; and in zone C in 2010. Although these revised population models produced lower population estimates than had been estimated in recent years, there remained concern that they are not tracking observed trends in harvest success or winter track surveys. Therefore, yearling and adult pregnancy rates were reduced in zones A, B, and D beginning in 2006 and in zone C beginning in 2004 to better correspond with the observed changes on the winter track surveys.

## **Results**

Skulls were obtained from 680 fishers (305 females, 318 males, 57 unknown) harvested during the 2015 season. Ages from these skulls have not been determined at this time. Since 1985, ages have been obtained from 14,069 harvested fishers (Table 1). Age distributions have been similar between sexes. Harvest age structure has been fairly stable over time. On average, juveniles have comprised approximately 50% of the fishers harvested, yearlings 25%, and adults 25%.

Fisher harvest success (number of fishers harvested/permit issued) declined 52-59% between 2002 and 2010 in the 4 northern fisher management zones (Dhuey et al. 2003, Dhuey and Olson 2011). Harvest success increased 60% in Zone A between 2010 and 2015, has been fairly stable at low levels in zones B and C, and doubled from 10% to 21% in Zone D (Dhuey et al. 2016). The geographic distribution of fisher harvest has shifted over the past 12 years with fewer fishers harvested in the northern most counties and higher harvests in counties along the

transition between the Northern Forest and Central Farmlands (Dhuey et al. 2003, Dhuey et al. 2015). The number of fisher tracks observed on track surveys in winter 2015-16 was 50% or more below the 20-year average in zones B and C and 25% or more below the 20-year average in zones A and D (Rees-Lohr 2016).

Fisher population models produced estimates for fall 2016 of approximately 1,800 fishers in Zone A, 2,200 in Zone B, 1,200 in Zone C, and 1,800 in Zone D (Table 2). Fisher populations appear to be near the established goal in zone A but appear to be below established goals in zones B, C and D. Population goals have not been established and models have not been developed for zones E and F.

The WDNR Furbearer Advisory Committee recommended harvest goals for 2016 of 150 in Zone A, 75 in Zone B, 60 in Zone C, and 100 in Zone D. Harvest goals for the 4 northern zones were designed to allow populations in these zones to stabilize (zone A and D) or slowly increase (zones B and C). Harvest goals of 250 and 350 were recommended for zones E and F, respectively.

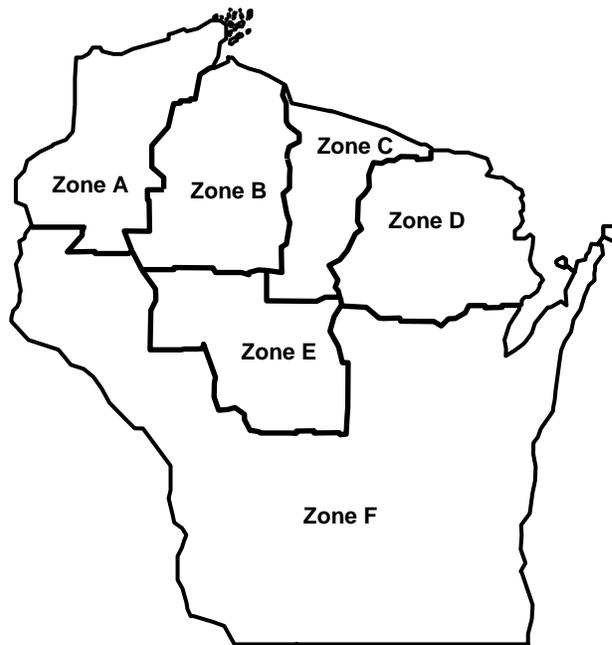
### **Literature Cited**

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**Figure 1.** Wisconsin's Fisher Management Zones open to trapping, 2015.

**Table 1.** Ages of fishers harvested in Wisconsin, 1985-2014.

Year	No. Aged	Percent in Age Class					
		Females			Males		
		Juv.	Ylg.	Adult	Juv.	Ylg.	Adult
1985-89	919	43	28	29	53	18	29
1990	271	49	34	17	50	27	23
1991	167	49	27	23	47	21	32
1992	1,420	52	25	23	51	26	24
1993	1,172	39	30	31	51	25	24
1994	1,158	55	24	22	54	24	22
1995	821	51	28	22	55	27	18
1998	247	55	31	14	65	18	18
1999	431	44	30	26	52	31	17
2000	529	44	30	26	47	31	22
2001	899	37	28	35	44	27	29
2002 <sup>a</sup>	18	75	0	25	40	30	30
2003 <sup>a</sup>	23	44	33	22	43	21	36
2004	1,023	40	26	34	48	29	23
2005 <sup>b</sup>	92	51	14	34	61	16	23
2006 <sup>b</sup>	212	45	31	24	51	28	21
2007	625	49	20	31	51	28	21
2008 <sup>b</sup>	305	43	25	31	50	29	20
2009 <sup>b</sup>	278	40	31	29	49	31	20
2010	1,322	39	28	33	52	25	28
2011 <sup>b</sup>	408	41	33	26	54	22	24
2012 <sup>b</sup>	405	44	23	33	60	21	19
2013	560	50	27	23	51	28	21
2014	764	48	21	31	54	24	22

<sup>a</sup> Only fishers harvested in Zone E were aged.

<sup>b</sup> Samples were primarily from zones E and F.

**Table 2.** Autumn fisher population estimates for fisher management zones A-D, 1984-2016<sup>a,b</sup>.

Year	Fisher Management Zones				Total
	A	B	C	D	
1984	1,000	1,400	600	1,100	4,100
1985	1,100	1,700	800	1,300	4,900
1986	1,300	1,900	900	1,600	5,700
1987	1,500	2,200	1,100	1,800	6,600
1988	1,500	2,500	1,200	2,000	7,200
1989	1,600	2,900	1,400	2,300	8,200
1990	1,600	3,200	1,700	2,500	9,000
1991	1,800	3,600	1,900	2,900	10,200
1992	2,100	4,100	2,200	3,300	11,700
1993	2,100	4,000	2,400	3,300	11,800
1994	2,100	3,800	2,500	3,300	11,700
1995	2,100	3,800	2,400	2,900	11,200
1996	2,300	3,800	2,400	2,900	11,400
1997	2,300	3,900	2,400	2,900	11,500
1998	2,400	2,600	1,800	2,000	8,800
1999	2,700	2,800	2,100	2,200	9,800
2000	3,000	3,000	2,200	2,400	10,600
2001	3,400	3,300	2,400	2,800	11,900
2002	3,500	3,000	2,400	2,800	11,700
2003	3,600	3,000	2,500	2,700	11,800
2004	4,000	3,200	2,500	2,900	12,600
2005	4,200	3,400	2,400	3,100	13,100
2006	3,900	2,800	2,200	2,900	11,800
2007	3,100	2,500	1,900	2,400	9,900
2008	2,900	2,500	1,700	2,200	9,300
2009	2,700	2,400	1,500	2,000	8,600
2010	2,500	2,200	1,300	1,900	7,900
2011	2,000	2,000	1,200	1,700	6,900
2012	1,900	1,900	1,200	1,600	6,600
2013	1,800	2,000	1,200	1,700	6,700
2014	1,800	2,000	1,200	1,700	6,700
2015	1,800	2,100	1,200	1,800	6,900
2016	1,800	2,200	1,200	1,800	7,000
GOAL	1,700	3,200	1,600	2,700	9,200

<sup>a</sup> Population models have not been developed for zones E and F.

<sup>b</sup> Reproductive rates in model were reduced in 2004 in Zone C and in 2006 in Zones A, B, and D.