MONTANA FISH, WILDLIFE & PARKS

Great Falls Management Area
2024 Fisheries Monitoring Report

Fisheries Division Federal Aid Job Progress Report
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Missouri River

Flow

Missouri River flows were monitored using the United States Geological Survey (USGS) gauge below Holter Dam (06066500). Flows during 2024 were mostly below average. Mean annual flow was 4,064 cfs in 2024, almost 1,200 cfs lower than the average of 5,254 in 1947-2024 (Figure1). Mean daily flow was less than the average for 1946-2023 for most of the year; short periods in January, August, and September were slightly above average (Figure 2.) Peak annual flow in 2024 was 6,800 cfs on June 15, less than half of the average peak annual flow for 1947-2024 (Figure 3).

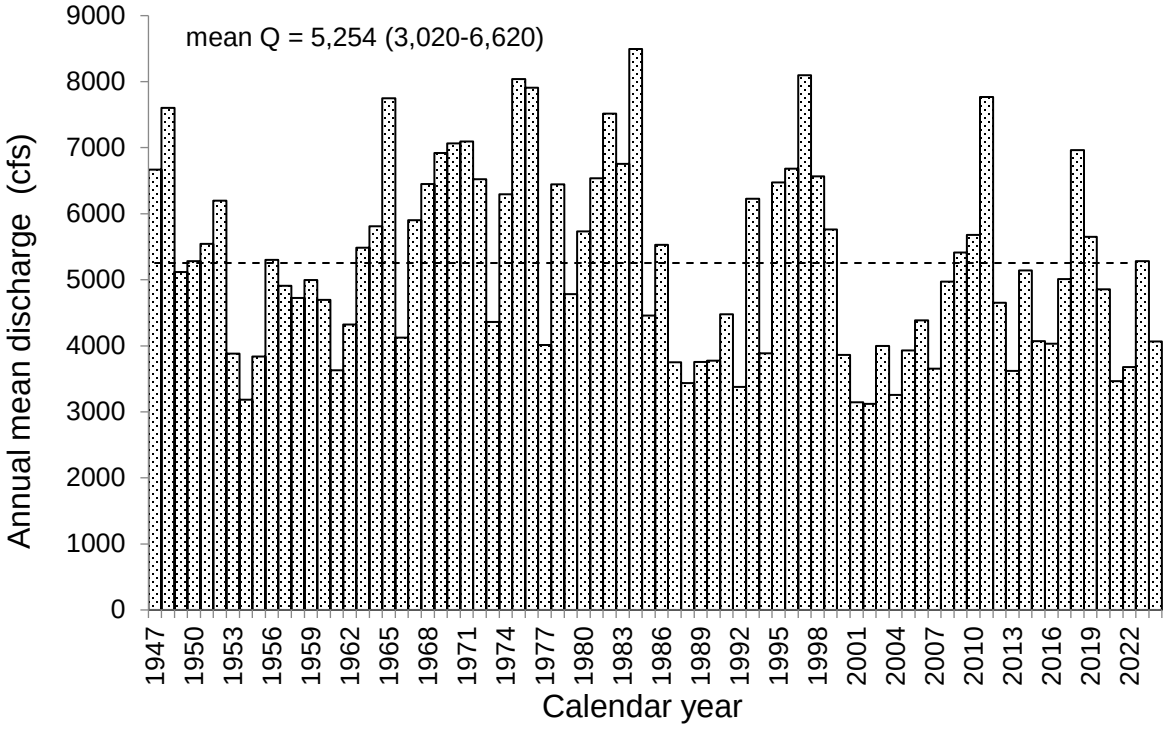

Figure 1. Mean annual flow by calendar year for the Missouri River below Holter Dam at USGS gaging station 06066500 from 1947 through 2024. Horizontal dashed line represents the mean annual flow.

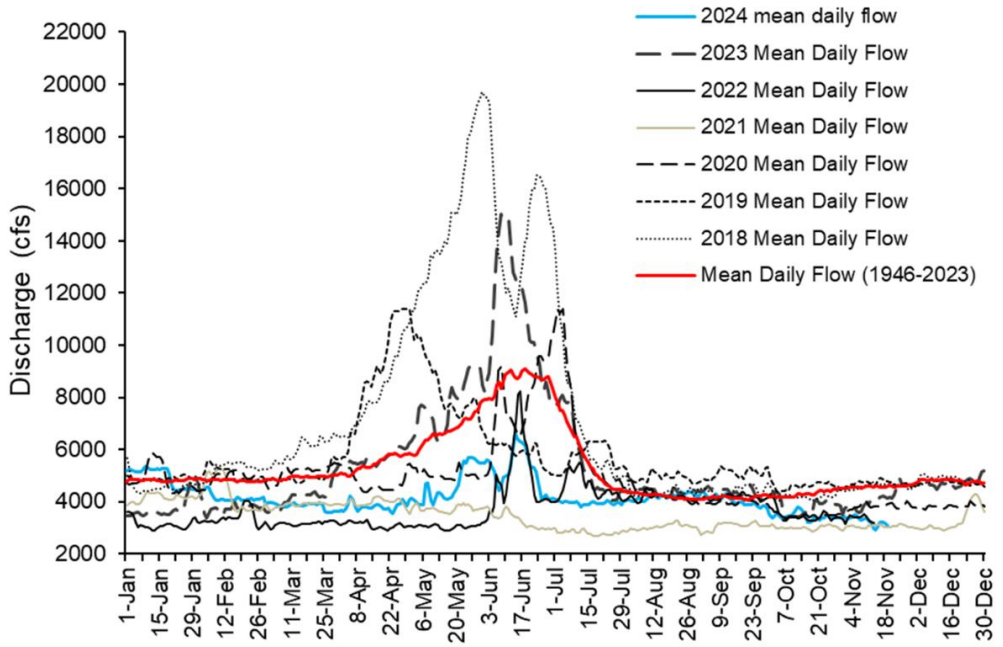

Figure 2. Mean daily flow for the Missouri River below Holter Dam at USGS gaging station 06066500 (below Holter Dam) for 2018 through 2024, and the mean for the period of record from 1946 through 2023.

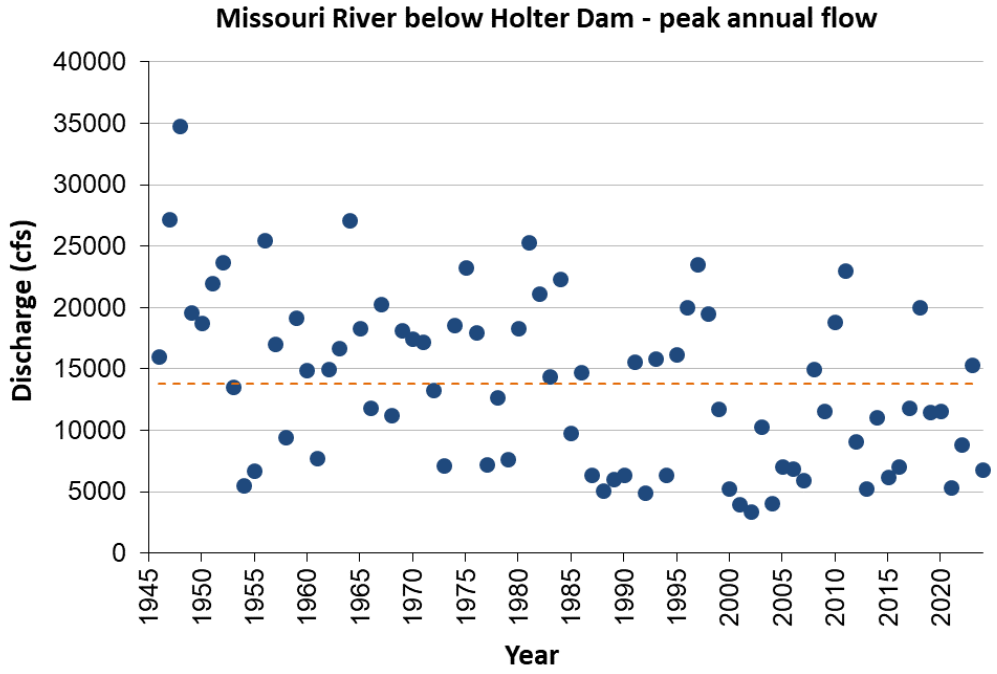

Figure 3. Peak annual flow for the Missouri River below Holter Dam at USGS gaging station 06066500 from 1947 through 2024. Horizontal dashed line represents the mean annual peak flow of 13,811 cfs.

Water temperature

Missouri River water temperatures were monitored using the USGS gauge below Holter Dam and additional temperature loggers placed near the town of Craig and Pelican Point boat ramp. Maximum daily water temperatures below Holter Dam in 2024 were similar to those in 2018-2023 (Figure 4). The warmest water temperatures at all three monitoring sites occurred in late July when air temperatures exceeded 100 °F. Maximum water temperature for the year was 68.7, 72.8, and 70.3 °F at Holter Dam, Craig, and Pelican Point respectively (Figure 5). Summer water temperatures at Craig in 2024 were similar to those in 2021-2023, although 2024 had the highest maximum temperature of those years (Figure 6).

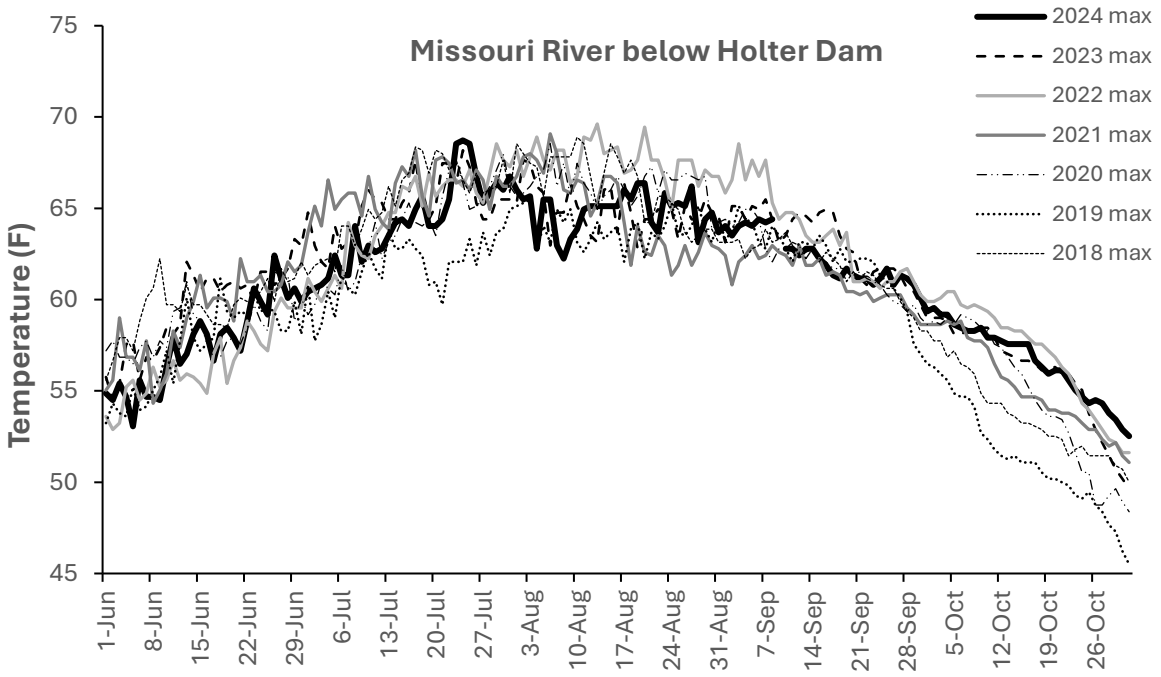

Figure 4. Maximum daily water temperatures (°F) from June through October for the Missouri River below Holter Dam at USGS gaging station 06066500 for 2018 through 2024.

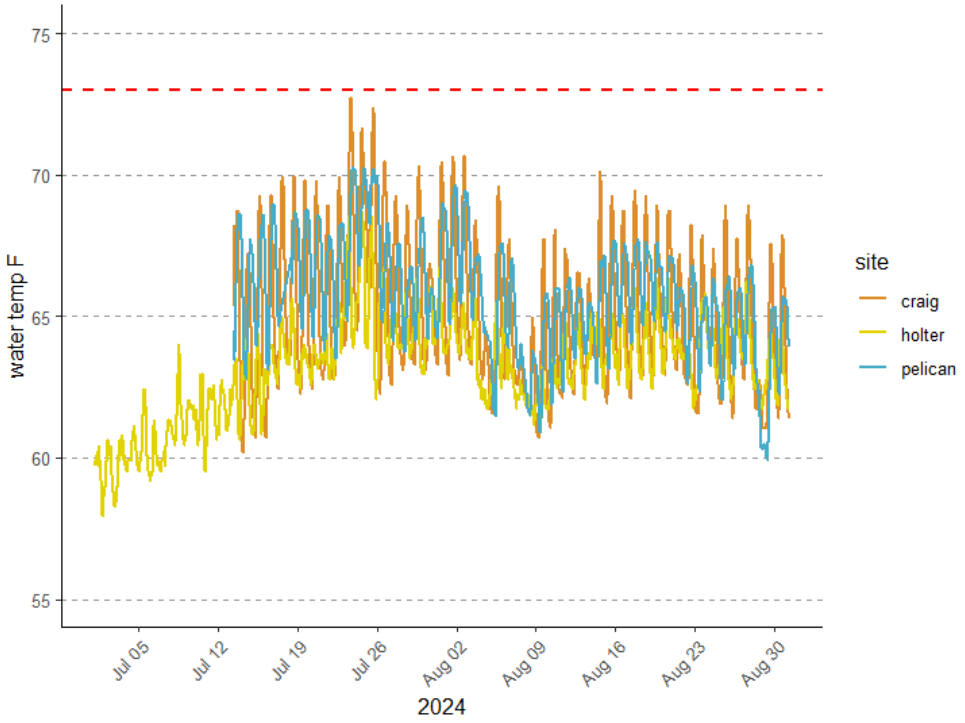

Figure 5. Missouri River water temperatures from below Holter Dam, Craig, and Pelican Point during July 2024. The red dashed line indicates 73 °F.

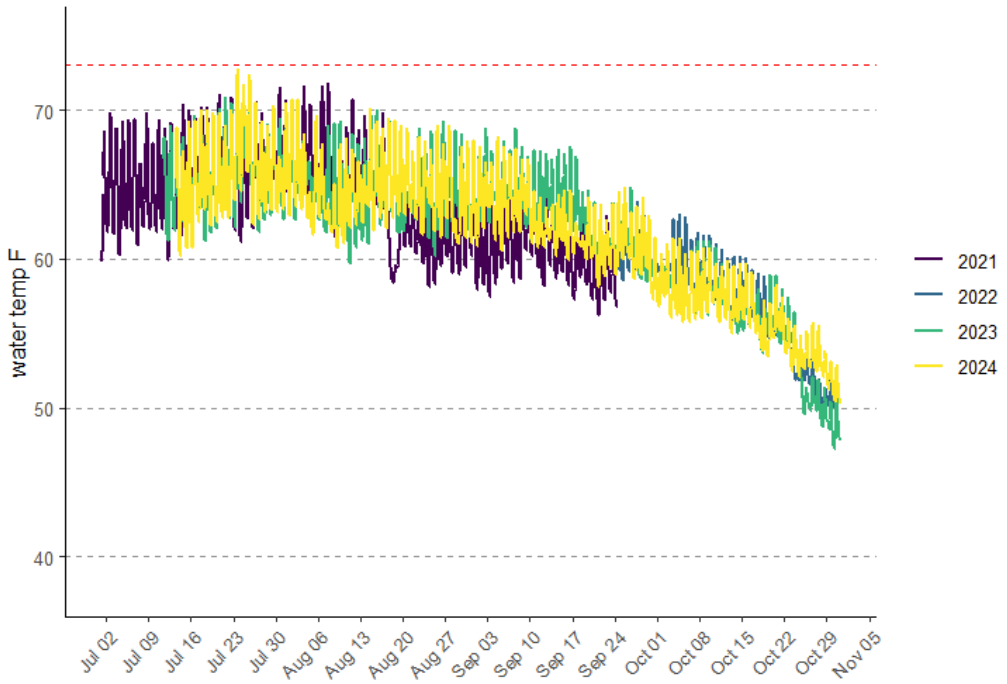

Figure 6. Missouri River water temperature at Craig in summer 2021-2024. The red dashed line indicates 73 °F.

Time of day angling restrictions have occasionally been implemented on the Missouri River in the past to reduce stress on the trout population from a combination of warm water temperatures, low flows, and high angling pressure, often from shifts in angling pressure due to restrictions elsewhere. Time of day angling restrictions were last implemented in 2021 due to a combination of high water temperatures, low flows, high angling pressure, and numerous restrictions throughout the state. Angling restrictions were not implemented in 2024 as flows were maintained at or above the minimum flow recommendation for the Missouri River of 4,100 cfs in 2024 compared to much lower flows near 3,000 cfs in 2021 (Figure 2). Additionally, fewer restrictions were implemented throughout the state in 2024, resulting in less of a potential shift in angling pressure to the Missouri River in 2024 than in 2021. Prior to 2021, 2000 was the last year that angling restrictions had been implemented.

Brown and rainbow trout estimates

Two sections of the Missouri River downstream from Holter Dam were electrofished at night using aluminum jet boats. The Craig section is 5.6 miles long and located from river mile (RM) 2,199.5 (measuring from its confluence with the Mississippi River) at Wolf Creek Bridge to RM 2,193.9 at Craig Bridge (Figure 7). The Cascade section is 4.1 miles long and is located from the power lines at RM 2,177.6 to an irrigation pump at RM 2,173.5 (Figure 8). The Pelican Point Fishing Access Site is located approximately midway through the section. Jet boats equipped with headlights and fixed boom electrofishing systems using stainless steel cable droppers suspended from each boom were used. Electricity from generators was converted to smooth DC using Smith-Root rectifying units. Brown trout *Salmo trutta* estimates were conducted in each section in spring from April 29 through May 17. Two jet boats were used in the Craig section, and one jet boat was used in the Cascade section with two nights of marking runs and two nights of recapture runs in each section. Rainbow trout *Oncorhynchus mykiss* estimates were conducted in autumn from October 7 through October 23 and two jet boats were used in each section. Three nights of marking runs and two nights of recapture runs were completed in the Craig section, and two nights of marking and two nights of recapture runs were completed in the Cascade section.

Data were uploaded into the FWP Fisheries Information System making the data publicly available through the FWP FishMT website. Beginning with data collected in 2021, abundance estimates were calculated for all years utilizing a department repeatable reporting tool. Abundance was estimated using maximum likelihood estimation to allow the effects of covariates such as age class and/or length to be included on the probability of detection. This method assumes that the population is closed. We used the glm function from the stats package in the R programming environment to estimate the effects of length on the probability of detection, and to then calculate abundance (R Core Team 2018). Reported abundance estimates are based on model-averaged estimates. Chi-square goodness-of-fit tests were used to evaluate the adequacy of model fit (Williams et al. 2002) and the Akaike Information Criterion was used to assess the best predictive model (Akaike 1998). Abundance estimates are reported as number of trout per mile 10 inches long and greater with 95% confidence intervals.

Figure 7. The Craig section of the Missouri River near Craig, Montana. The upstream starting point at Wolf Creek Bridge is indicated by the green line on the left, while the downstream stopping point at Craig Bridge is indicated by the red line on the right. The section is 5.6 miles long.

Figure 8. The Cascade section of the Missouri River near Cascade, Montana. The upstream starting point at power lines is indicated by the green line on the left, while the downstream stopping point at an irrigation pump is indicated by the red line on the right. The section is 4.1 miles long.

The estimate of brown trout 10 inches long and greater in the Craig section was 744 (95% CI [702, 785]) per mile in spring 2024 (Figure 9). The 2024 estimate was 118% of the long-term average of 627 per mile based on estimates since 1983 (n = 38, Figure 9). While population estimates are only reported for fish 10 inches and greater, the most abundant size class of brown trout sampled in 2021 was 6 to 9 inches, indicating a potential strong year class of juveniles. This cohort was apparent in 2022, with 11 to 15-inch fish by far the most abundant, explaining the large increase in the brown trout population estimate of fish 10 inches and greater from 2021 to 2022. The cohort was evident again in 2023 with 13 to 18-inch fish the most abundant. In 2024, the most abundant size class of brown trout sampled was 16 to 18 inches, again showing an increase in length and a decrease in abundance of the cohort first observed in 2021 (Figure 11).

The estimate of rainbow trout 10 inches long and greater in the Craig section was 3,312 (95% CI [3,100, 3,524) per mile in fall 2024 (Figure 9). The 2024 estimate was 90% of the long-term average of 3,694 fish per mile based on annual estimates since 1982 (n = 42). The most abundant size class in 2024 was 17 to 19 inches. Small rainbow trout were extremely abundant during sampling in fall 2020, as demonstrated by the estimate of 6-inch rainbow trout, and smaller individuals that were observed but not marked. This cohort made up a large proportion of the population estimate greater than 10 inches in 2021, 2022, and 2023 which resulted in three of the four highest estimates on record for those years. In 2024, the cohort first observed in fall 2020 showed an increase in length and a decrease in abundance (Figure 12).

The estimate of brown trout 10 inches long and greater in the Cascade section was 444 (95% CI [372, 517]) per mile in spring 2024 (Figure 10). The 2024 estimate was 112% of the long-term average of 398 per mile (n = 39). The most abundant size class of brown trout in the Cascade section was 6 to 7 inches, possibly indicating good recent recruitment (Figure 13). While the 2024 estimate decreased slightly from 2023, it was still higher than the long-term average.

The estimate of rainbow trout 10 inches long and greater in the Cascade section was 1,300 (95% CI [1,146, 1,455]) per mile in fall 2024 (Figure 10). This estimate was 77% of the long-term average of 1,682 per mile (n =42) and was similar to estimates in 2022 and 2023. The most abundant size class of rainbow trout was 9 to 10 inches in 2024 (Figure 14).

The large increase in rainbow trout and brown trout in the Craig section from 2020 to 2023 appears to be related to the high flow event in 2018. Based on the recent size distribution of the populations, it appears there were two good years of reproduction and recruitment for rainbow trout and brown trout from fall 2018 through spring 2020. Increases in rainbow trout, brown trout, or both were documented following high flow events in 1996-1998, and 2010-2011 in both the Craig and Cascade sections (Figures 9 and 10). The cohorts associated with the 2018 high flow event were age-5 to age-6 in 2024. The drop in trout abundance from 2023 to 2024 was likely due to adult fish ageing out of the system combined with a lack of replacement recruits due to drought in 2020-2022.

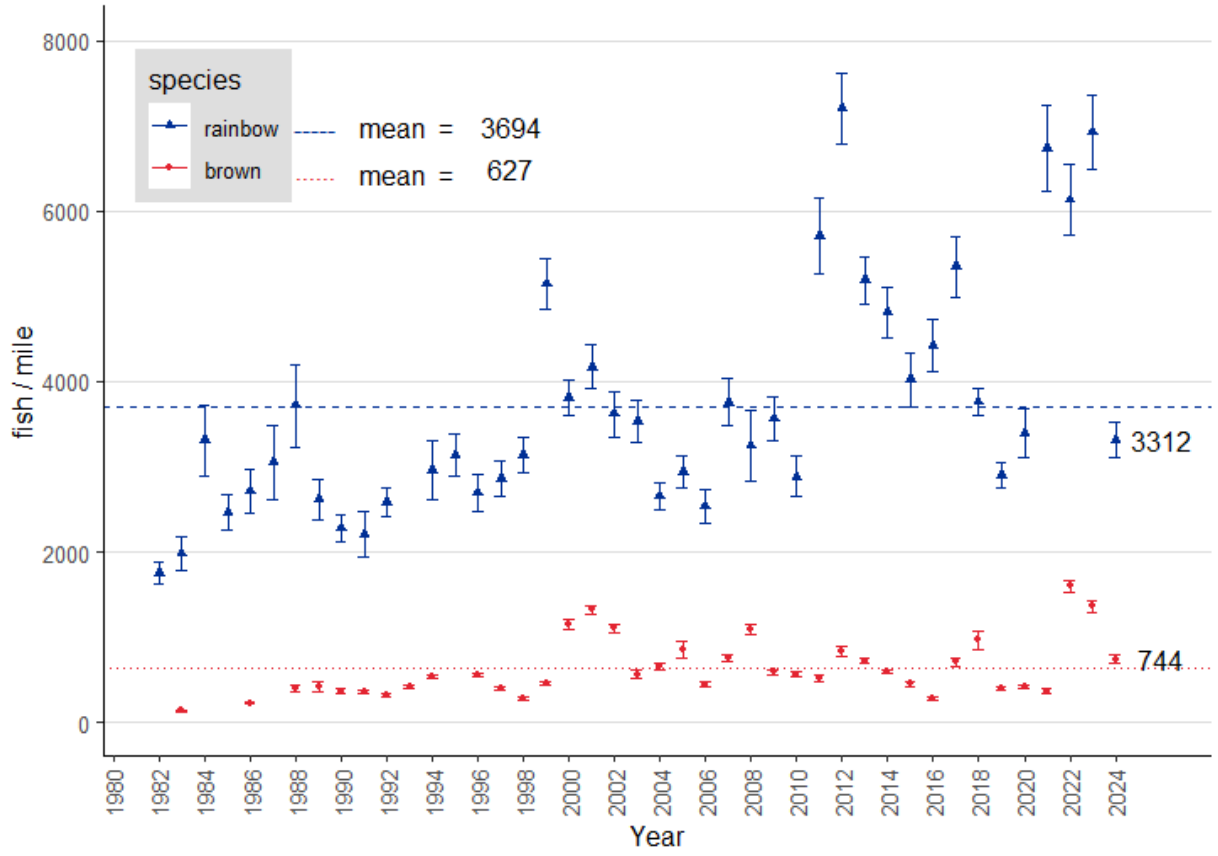

Figure 9. Population estimates of rainbow trout and brown trout (fish per mile) in the Missouri River, Montana within the Craig sampling section from 1982 through 2024. Estimates (mean and 95% confidence intervals) represent the model-averaged estimates for all trout 10 inches and greater using the maximum likelihood method. Long-term average number of rainbow trout and brown trout per mile are designated by dashed lines. 2024 estimates were 3,312 and 744 respectively.

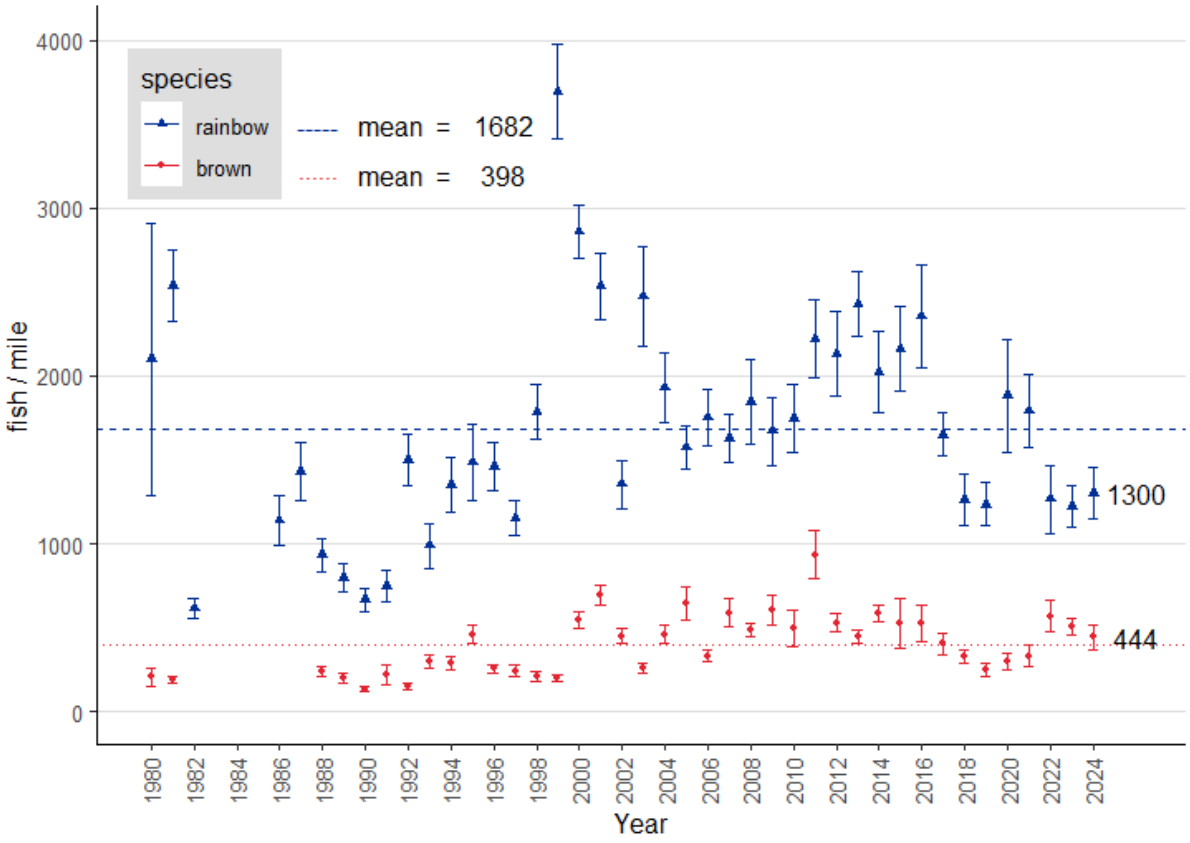

Figure 10. Population estimates of rainbow trout and brown trout (fish per mile) in the Missouri River, Montana within the Cascade sampling section from 1980 through 2024. Estimates (mean and 95% confidence intervals) represent the model-averaged estimates for all trout 10 inches and greater using the maximum likelihood method. Long-term average number of rainbow trout and brown trout per mile are designated by dashed lines. 2024 estimates were 1,300 and 444 respectively.

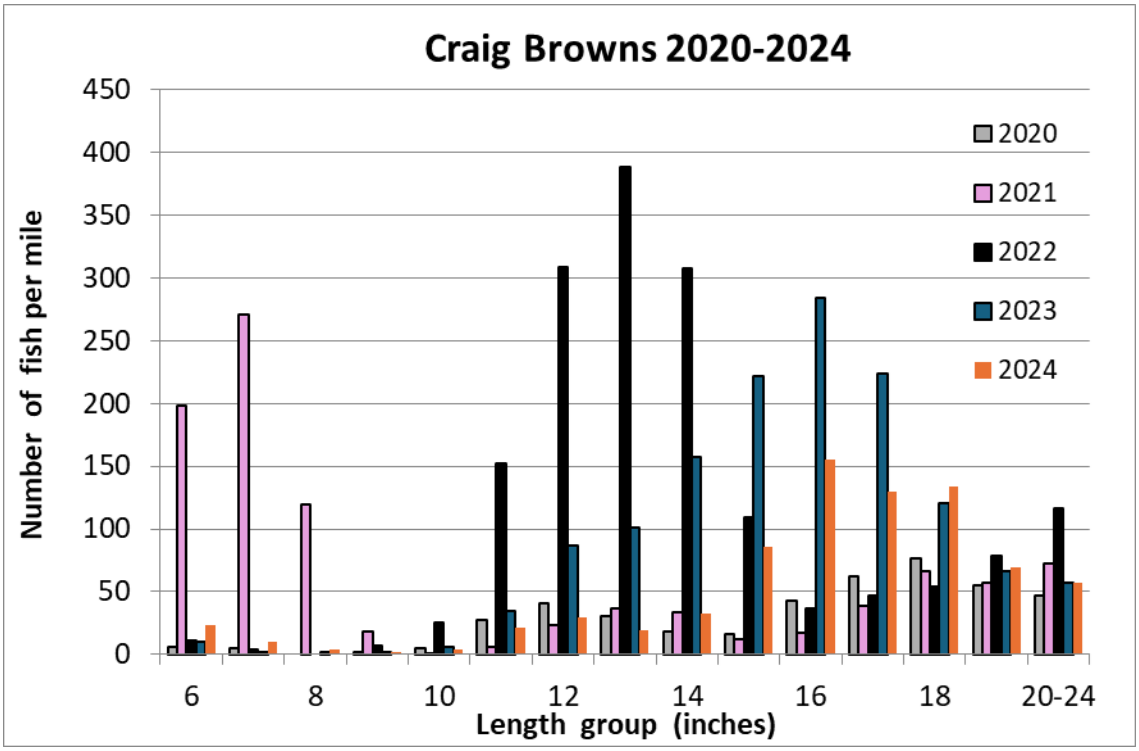

Figure 11. Length-frequency histogram of brown trout population estimates (fish per mile) by 1-inch length group for 2020 - 2024 for the Craig section of the Missouri River.

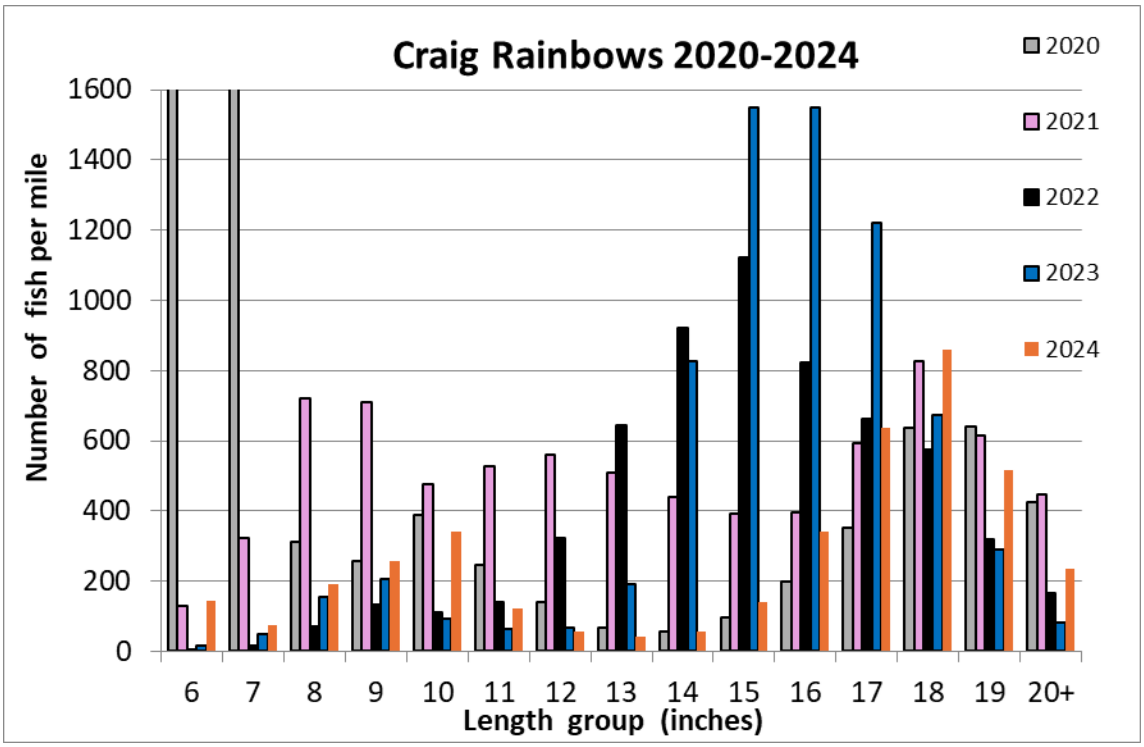

Figure 12. Length-frequency histogram of rainbow trout population estimates (fish per mile) by 1-inch length group for 2020 - 2024 for the Craig section of the Missouri River.

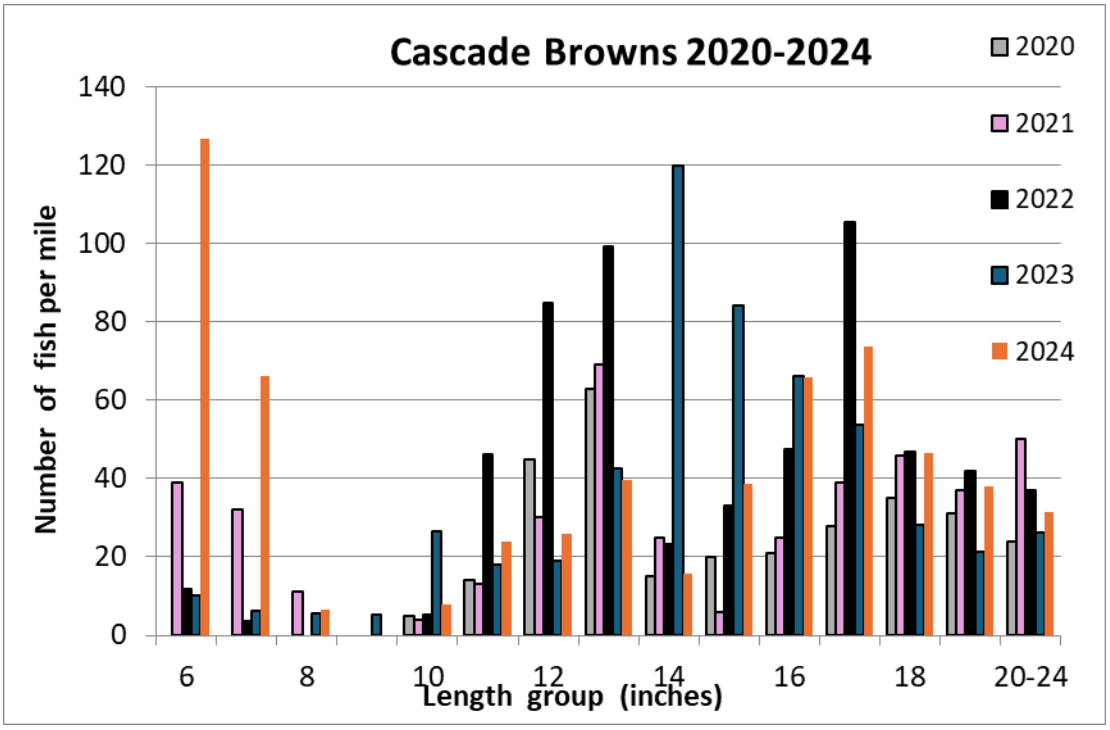

Figure 13. Length-frequency histogram of brown trout population estimates (fish per mile) by 1-inch length group for 2020 - 2024 for the Cascade section of the Missouri River.

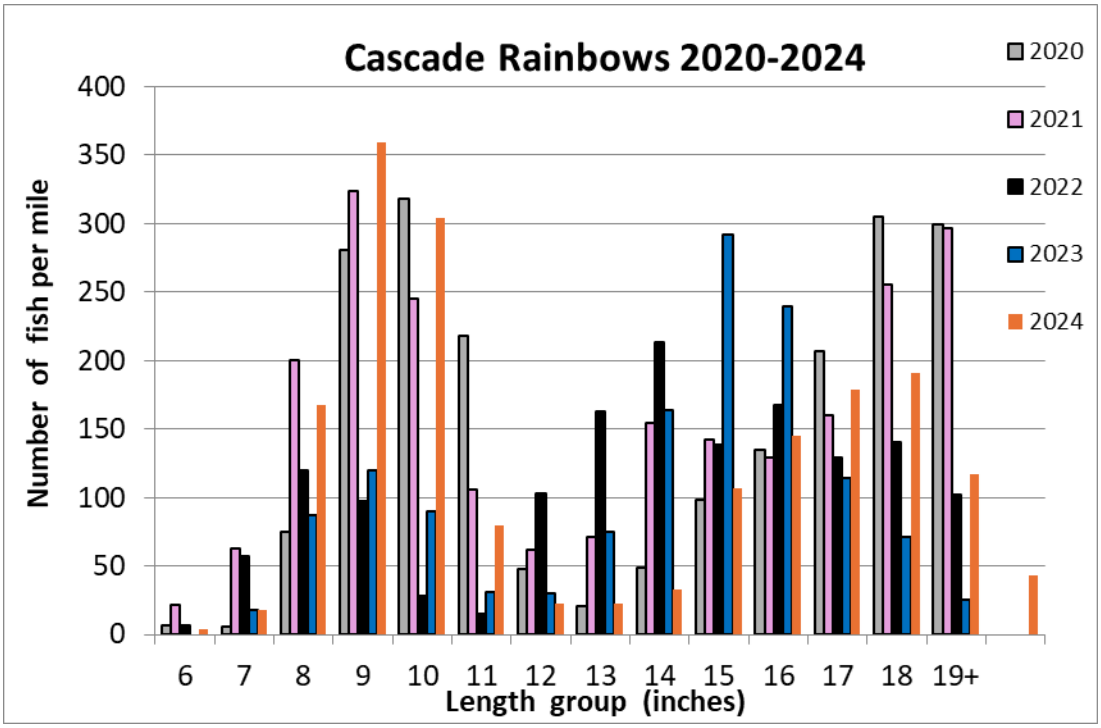

Figure 14. Length-frequency histogram of rainbow trout population estimates (fish per mile) by 1-inch length group for 2020 - 2024 for the Cascade section of the Missouri River.

Brown and rainbow trout health

Brown trout and rainbow trout collected during annual spring and fall electrofishing on the Craig and Cascade sections of the Missouri River were investigated visually for the presence of external fungus and lesions. The location of pathology was recorded as either head or body. Occurrence of fungus or lesions in sampled trout was low in 2024 at both the Craig and Cascade sections. Head lesions on brown trout in the Craig section had the highest number of observations (n = 33, 1.6%); all other observations numbered four or fewer, with nine of the sixteen categories having zero observations (Table 1).

Table 1. Number of brown trout and rainbow trout with observed fungus or lesions encountered during annual electrofishing in the Craig and Cascade sections of the Missouri river. 'Total handled' includes recaptured fish.

site	species	head fungus	body fungus	head lesion	body lesion	total handled
Craig	rainbow trout	0	1	3	1	5,114
	brown trout	1	0	33	4	2,006
Cascade	rainbow trout	0	1	0	0	1,888
	brown trout	0	0	0	0	677
	totals	**1**	**2**	**36**	**5**	**9,685**

Mountain whitefish

Mountain whitefish *Prosopium williamsoni* were not typically monitored during past electrofishing surveys due to logistical constraints and the potential negative effects of stress from handling, which is greater than that for trout. However, two surveys were conducted over the upper 2.5 miles of the Craig section in 2004 and 2005. While an effort was made to calculate a population estimate using Mark-Recapture techniques, the low abundance and poor recapture rates resulted in poor estimates and the data being suitable for only catch per unit effort (CPUE). A similar effort to evaluate CPUE of mountain whitefish was conducted beginning in 2020 and continued through 2024 during the spring sampling for brown trout. In 2020 and 2021, all mountain whitefish encountered 6 inches and greater in the upper 2.5 miles of the Craig section were netted, counted, and measured during the first marking run. For all subsequent runs (second marking run and two recapture runs), all mountain whitefish were counted but not netted to reduce stress from handling. Starting in 2022, similar methods were employed except only approximately 100 (~50 from each bank) mountain whitefish were netted, weighed, and measured at the start of the first marking run to evaluate size structure. The remainder of Run 1 and all subsequent runs were visually counted using the same methods as 2020 and 2021.

Catch per unit effort was evaluated as the average number of mountain whitefish per mile including all four runs for each year. All four runs were incorporated due the substantial variability among runs and that there was no consistent decrease in abundance with subsequent runs, which would merit evaluating only Run 1 data. The size distribution was evaluated for each year as the proportion of individuals handled by 0.5-inch length group, due to the varying sample size of fish handled from the different methods among years.

The observed average number of mountain whitefish per mile within the first 2.5 miles of the Craig section ranged from 43 to 138 in 2004-2005 and 2020-2024. While CPUE data cannot be interpreted with the same level of confidence as population estimates, CPUE was similar in 2004, 2005, and 2021, lower in 2020 and 2023, and higher in 2022 and 2024 (Figure 15). The size distribution of mountain whitefish was similar in 2004 and 2005, with fish between 15 and 18 inches most common and few fish less than 14 inches. In 2020, 2021, and 2022, mountain whitefish less than 14 inches made up a much greater proportion of the samples than earlier years, with 10.5 to 12.5-inch fish most abundant in 2022. In 2023, the majority of mountain whitefish were 12 to 14-inch fish with a notable lack of fish under 11 inches compared to other years. In 2024, the majority of mountain whitefish were 14 to 15-inch fish, with no fish sampled less than 11 inches (Figure 16). Similar to trout, the current population of mountain whitefish appears to be predominantly made up of fish that were recruited in relation the high flow event in 2018.

A yearlong creel survey was completed from March 2015 through February 2016 on the Missouri River (Mullen and Schilz 2017). Catch rates of mountain whitefish from the 2015 creel survey were similar to those observed in 1993, but less than rates observed in 2002 and 1988 (Leathe et al. 1988; Horton and Liknes 2003; Horton and Clark 2004). Mountain whitefish sampling efforts will be continued in future years to collect more data for population trend evaluation.

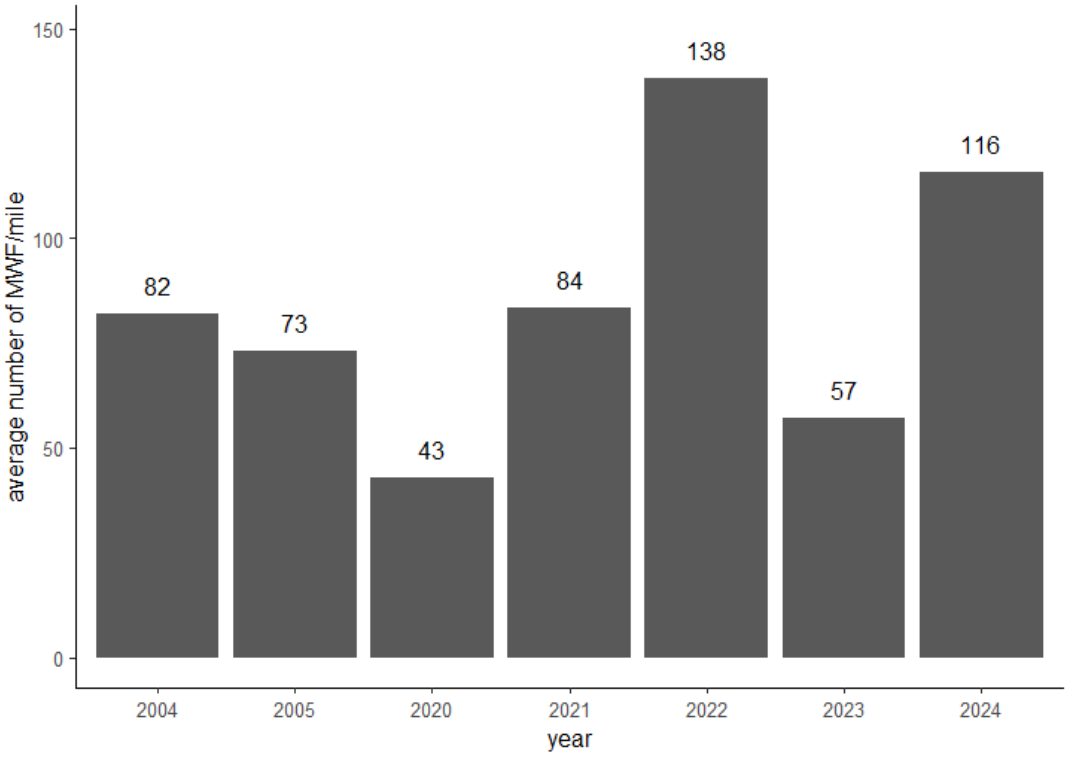

Figure 15. Average number of mountain whitefish (6 inches and greater) per mile handled or visually counted from electrofishing four runs of the first 2.5 miles of the Craig section. In 2004-05, all MWF were collected; in 2020-21 MWF were collected during run 1 and visually counted after; in 2022-24 the first 100 MWF of run 1 were collected and visually counted after.

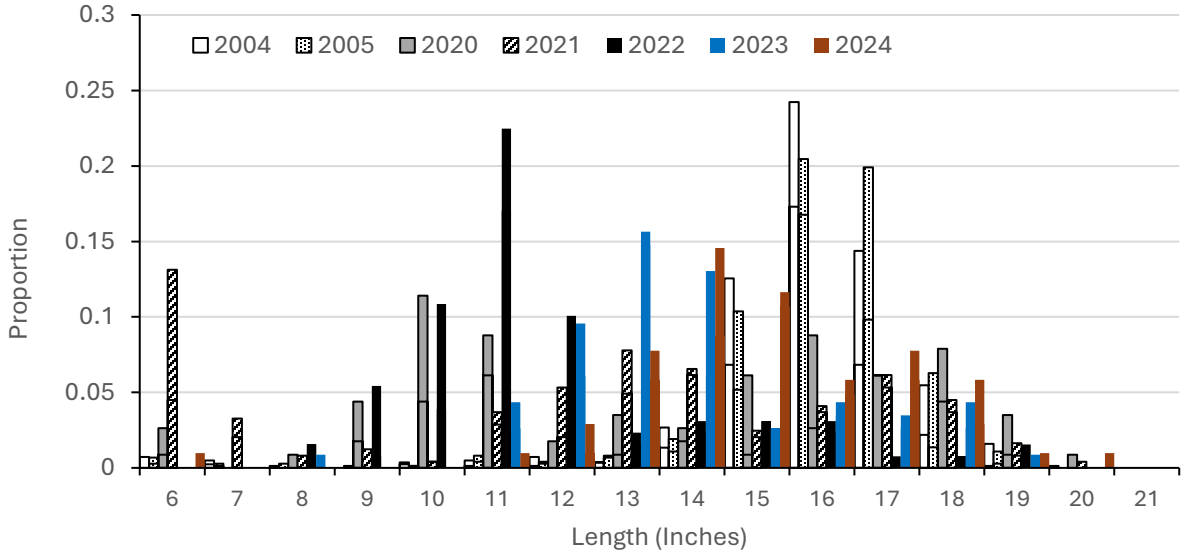

Figure 16. Length-frequency histogram for mountain whitefish collected in 2004 (n=821, 4 runs), 2005 (n=733, 4 runs), 2020 (n=114, 1 run), 2021 (n=244, 1 run), 2022 (n=129, portion of 1 run), 2023 (n=115, portion of run 1), and 2024 (n=103, portion of run 1) during spring electrofishing of the first 2.5 miles of the Craig section of the Missouri River. Proportion of fish for each year is shown on the y-axis as a function of length (inches) on the x-axis.

Burbot and walleye

In the Craig Section, 29 burbot and 15 walleye were sampled in spring 2024, and 127 burbot and 22 walleye were sampled in fall 2024. In the Cascade section, 13 burbot and 0 walleye were sampled in spring 2024 and 50 burbot and 21 walleye were sampled in fall 2024. Burbot ranged from 8.3 to 28.5 inches and walleye ranged from 5.4 to 24.2 inches. Size distribution of walleye in the Craig section was fairly level while size distribution for the Cascade section was skewed toward fish under 10 inches. Size distribution of burbot was relatively similar between the Craig and Cascade sections except that the Craig section had more fish over 24 inches.

Based on fall electrofishing data from the Craig section, burbot were most abundant from 1997 through 2001 and to a lesser degree from 2010 through 2014. The number of burbot handled in 2024 was similar to 2022 and 2023 and above the long-term average of 79. There has been a general increasing trend in the number of burbot handled since 2016 (Figure 17).

Walleye were most abundant in the Missouri River in 2010 and 2011 following high flow events and corresponding with a period of relatively abundant populations in Holter Reservoir. Somewhat higher numbers of walleye were collected in fall 2018 and 2019 following a high flow event in spring 2018, but densities in Holter Reservoir were lower at this time than around 2010 and 2011, which may explain the smaller increase in numbers. The number of walleye handled in 2024 was slightly below the long-term average of 25. The mean number of burbot handled during fall electrofishing in the Craig section from 1986 through 2024 was 79. The mean number of walleye handled during fall electrofishing in the Craig section from 1984 through 2024 was 25 (Figure 17).

Most walleye harvest tag returns were reported within a year of being tagged and few tags were reported two years or longer after being tagged (Appendix A, Tables A1 and A2). In the Holter tailrace section, since 2006, an average of 17% of tagged walleye were reported as harvested by the following year (min = 2%, max = 36%) (Appendix A, Table A1). Similarly, 18% of tagged walleye were reported as harvested by the following year in the Missouri River below Holter (min = 7%, max = 41%), excluding the tailrace section (Appendix A, Table A2). Despite relatively few walleye harvest tag returns beyond the year after tagging, the tagging program has documented walleye up to 23 years old in the Missouri River, based on the age of the fish when tagged and angler reported catch date.

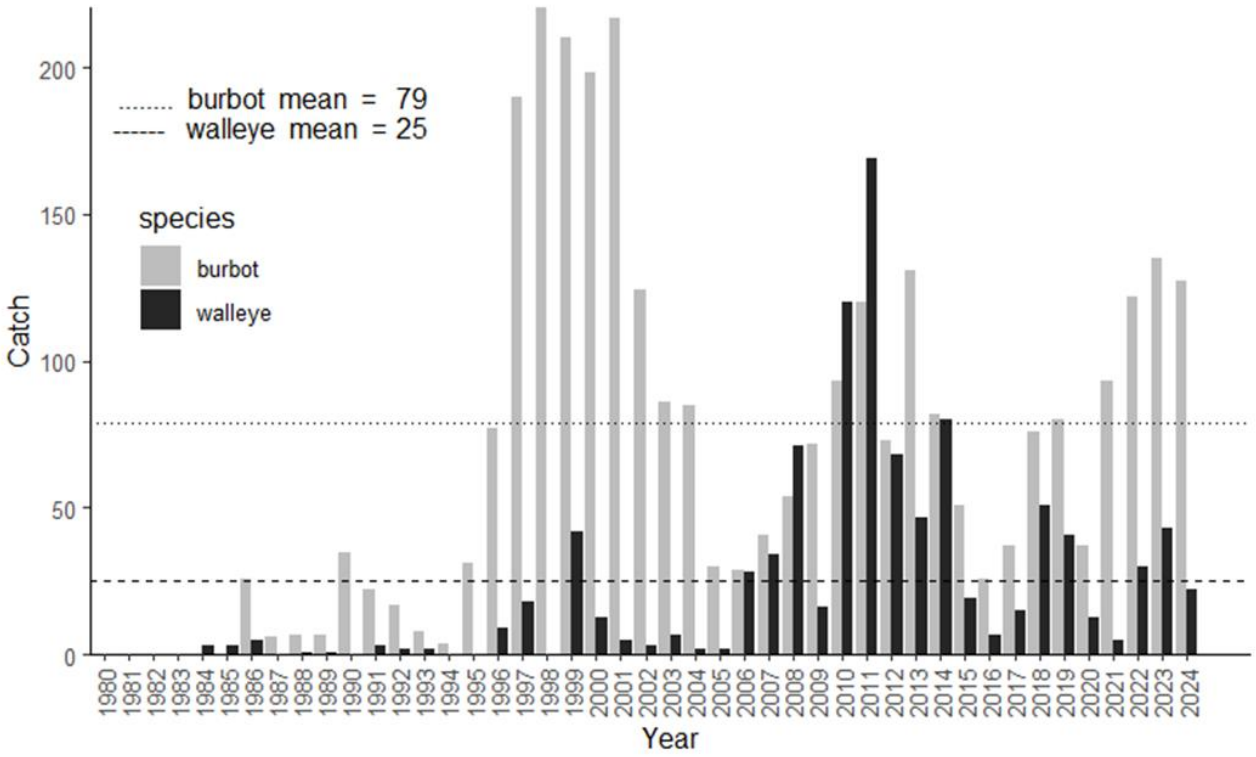

Figure 17. Number of burbot and walleye handled during standardized fall electrofishing surveys in the Craig section of the Missouri River. The horizontal dotted line represents the mean number of burbot handled in 1986 – 2023 and the horizontal dashed line represents the mean number of walleye handled in 1984 – 2024.

Walleye regulations from Holter Dam to Cascade Bridge were changed by the FWP Commission from the standard 5 daily and 10 in possession regulation in 2010 to no limit in 2011 through 2019. While the percent of anglers reporting tagged fish is unknown, based on harvest tag return rates from walleye tagged in the Holter tailrace (Appendix A, Table A1) and those tagged primarily in the Craig section (Appendix A, Table A2), there was no increase in the harvest tag return rate with the change in regulations. In fact, walleye harvest return rates tended to be higher before 2011 than after with a combined 29% (50 of 175 tagged fish) returned as harvested within one year for fish tagged from 2004 through 2009 compared to 15% (137 of 924 tagged) returned as harvested within one year for fish tagged from 2011 through 2018 (Appendix A, Tables A1 and A2). A creel survey was completed from March 2015 through February 2016 (Mullen and Schilz 2017). Of the 75 walleye that were reported as harvested during angler interviews, only 8 total walleye (angler harvest of 6 to 8 walleye per person) were in excess of what the prior standard regulation would have allowed (Mullen and Schilz 2017). Four of the twenty-five (16%) anglers who harvested walleye, harvested in excess of the old standard regulation (Mullen and Schilz 2017). The no limit regulation was removed in 2020 and replaced with 20 daily and 40 in possession from Holter Dam to Cascade Bridge and 10 daily and 20 in possession from Cascade Bridge to Black Eagle Dam.

In 2024, 48 seine hauls were conducted at 12 long-term monitoring sites from Cascade to Great Falls. Eight YOY walleye were sampled. The number of YOY walleye has been highly variable, but relatively low in most years. The most YOY walleye were collected in the first two years of sampling in 2009 and 2010 with 213 and 235 individuals collected over the 12 sites. In most other years, the number of YOY walleye has been approximately 50 or less with 0 or 1 individuals collected in 6 of the 16 years. Young of the year walleye abundance may be related to flow events that flush walleye into the Missouri River from Holter Reservoir and flows that provide suitable spawning and rearing conditions. Young of the year walleye abundances were generally highest with moderately high peak flows in 2009 and 2010 and lowest during the low flow years of 2013, 2015, 2016, 2021, and 2022. However, YOY walleye abundance was also relatively low during 2011, the year with the highest peak flow (Figure 18).

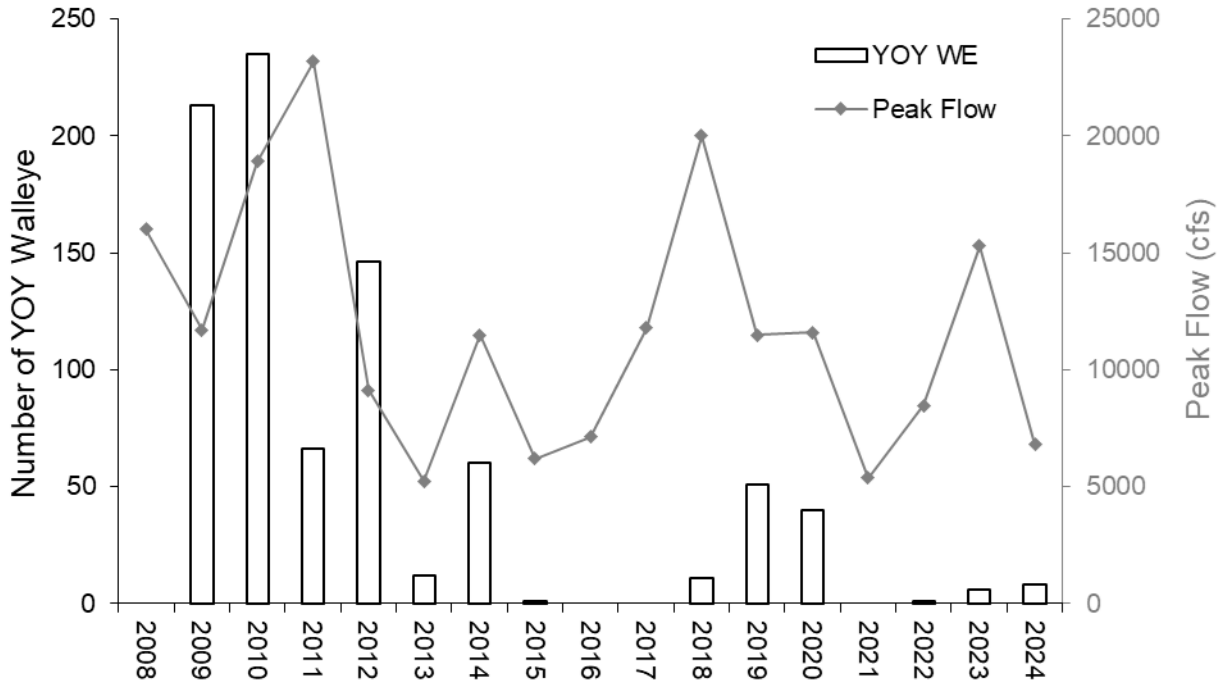

Figure 18. Total number of young of the year walleye from seining sites along the Missouri River from Cascade to Great Falls from 2009 through 2024 (left y-axis) and the peak annual flow of the Missouri River from USGS gage 06066500 from 2008 through 2024 (right y-axis). Zero young of the year walleye were collected in 2016, 2017, and 2021.

Northern pike

During the annual seining surveys for YOY walleye, one juvenile northern pike was sampled in 2019 and 2020, representing the first northern pike sampled during these surveys. No northern pike were collected in 2021, but in 2022, seven juvenile northern pike were collected from the standard 12 monitoring sites, with several adults also observed. Forty-eight juvenile northern pike were sampled in 2023, likely related to high flows that created suitable spawning conditions. In 2024, 17 northern pike were sampled, ranging in total length from 6.5 to 18.6 inches with a median length of 7.1 inches (Figure 19).

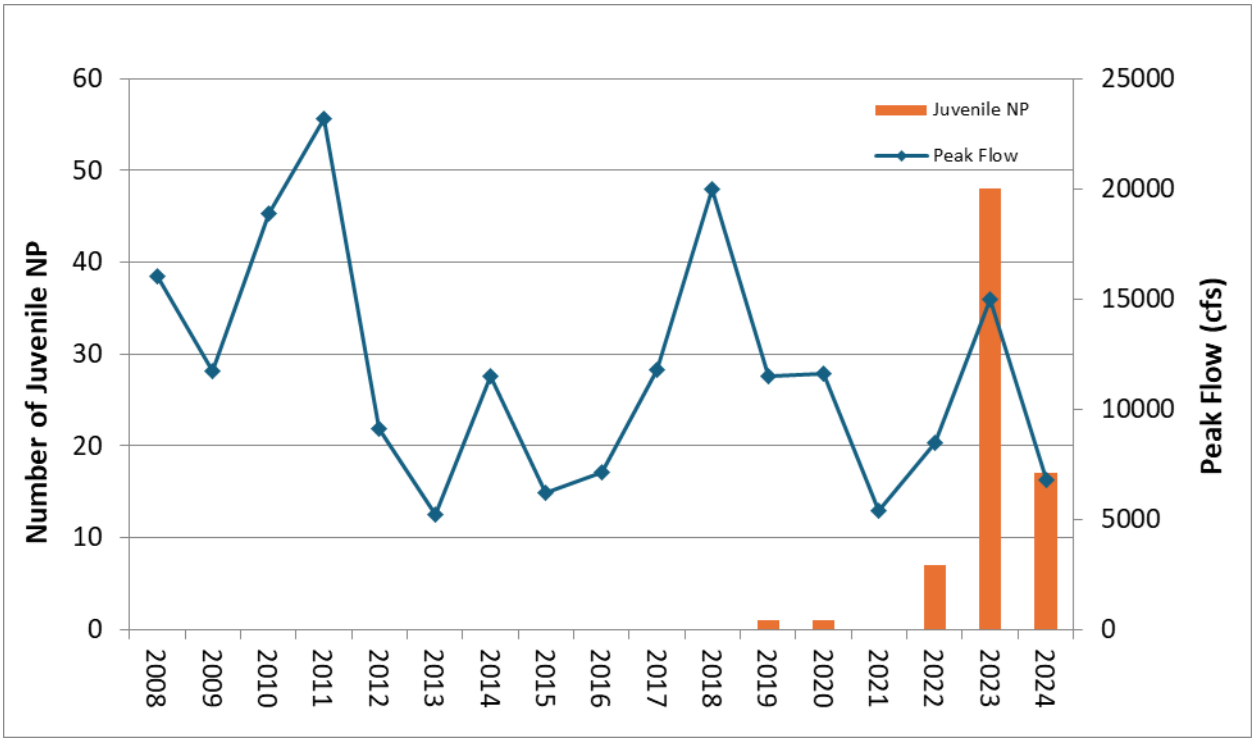

Figure 19. Total number of juvenile northern pike from seining sites along the Missouri River from Cascade to Great Falls from 2009 through 2024 (left y-axis) and the peak annual flow of the Missouri River from USGS gage 06066500 from 2008 through 2024 (right y-axis).

In recent years, numerous other northern pike have been observed by FWP personnel and beginning in 2018 anglers reported catching numerous adult northern pike in the Missouri River between Holter Dam and Rainbow Dam. Most of the angler reports of northern pike catch have come from the area between Cascade to Ulm, but some northern pike have been reported as caught immediately downstream of Holter Dam and more recently between Black Eagle and Rainbow dams. One northern pike was collected in the Craig section during spring 2020 electrofishing but was subsequently lost before measurements could be collected. This represents the first northern pike encountered during the annual monitoring surveys since that began in 1980. Two adult northern pike were collected in 2023 in the Craig section during electrofishing, one in the spring and one in the fall.

In 2022, one adult northern pike was collected from Rainbow Reservoir and one adult was collected from Ryan Reservoir, which represent the first northern pike collected from the Great Falls reservoirs which have been sampled annually since 2014. No northern pike were sampled from the Great Falls reservoirs in 2023; however, anglers reported encountering more northern pike than in previous years. Various sampling methods (gill net, trap net, and angling) were employed on the Missouri River from Taylor Island to the railroad bridge downstream of the mouth of the Sun River in fall 2023 to collect fish for contaminant testing. During these efforts, six northern pike were collected and several were observed while angling. Two northern pike were collected in gill nets during 2024 spring sampling on Rainbow Dam Reservoir. During 2024 fall gill netting in Ryan, Cochrane, and Morony reservoirs, one northern pike was collected in each reservoir.

Based on the increased reports from anglers and northern pike presence during recent sampling, including the documentation of juvenile northern pike, northern pike have become established in the Missouri River downstream of Holter Reservoir. However, to date, the majority of northern pike observations have been downstream of Cascade. It is likely the high flows in 2018 resulted in northern pike being flushed into the river from Holter Reservoir. Northern pike abundance has also increased in Holter Reservoir in recent years and will likely continue to act as a source for northern pike in the river, particularly during high flow years, similar to what has been documented for walleye.

In 2019, the FWP Commission approved changes to the northern pike regulations downstream of Holter Dam that went into effect March 1, 2020. Northern pike regulations on the Missouri River from Holter Dam downstream to Black Eagle Dam were changed from the standard regulation of 10 daily and in possession to No Limit. This regulation change is intended to encourage harvest of northern pike given the increased abundance throughout the system and is consistent with regulations already in place in the Missouri River and reservoirs upstream of Holter Dam.

References

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Appendix A

Table A1. Number and percent of walleye harvested (columns) and number tagged (rows) by year in the Missouri River Holter tailrace section (Holter Dam to Wolf Creek Bridge).

Tagging Year		Harvest Year																					
		2004-2005		2006-2007		2008-2009		2010-2011		2012-2013		2014-2015		2016-2017		2018-2019		2020-2021		2022-2023		2023-2024		Totals	
Year	# Tagged	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%			*N*	%
2004	**4**	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
2006	**11**			4	36%	0	0%	1	9%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	5	45%
2008	**42**					9	21%	0	0%	0	0%	0	0%	0	0%	1	2%	0	0%	0	0%	0	0%	10	24%
2010	**57**							5	9%	6	11%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	11	19%
2012	**52**									9	17%	1	2%	0	0%	0	0%	0	0%	0	0%	0	0%	10	19%
2014	**43**											3	7%	0	0%	0	0%	0	0%	0	0%	0	0%	3	7%
2016	**35**													2	6%	2	6%	0	0%	1	3%	0	0%	5	14%
2018	**48**															1	2%	0	0%	1	2%	0	0%	2	4%
2020	**17**																	1	6%	0	0%	3	18%	4	24%
2022	**18**																			2	11%	3	17%	5	28%
2024	**20**																					0	0%	0	0%
Total	**327**			**4**		**9**		**6**		**15**		**4**		**2**		**4**		**1**		**4**		**6**		**55**	**17%**

Table A2. Number and percent of walleye harvested (columns) and number tagged (rows) by year in the Missouri River below Holter Dam. Most walleye were tagged during monitoring in the Craig section. Table excludes tags from the Holter tailrace (Holter Dam to Wolf Creek Bridge) section.

Tagging Year		Harvest Year																															
		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		2023		2024		Totals	
Year	# Tagged	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
2008	**61**	20	33%	5	8%	0	0%	2	3%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	27	44%
2009	**57**			12	21%	0	0%	0	0%	1	1%	1	1%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	14	25%
2010	**107**					7	6%	2	2%	2	2%	2	2%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	13	12%
2011	**185**							10	5%	18	10%	8	4%	1	1%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	37	20%
2012	**140**									21	15%	2	1%	5	4%	0	0%	1	1%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	29	21%
2013	**93**											16	17%	2	2%	1	1%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	19	20%
2014	**142**													14	10%	9	6%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	1%	24	17%
2015	**44**															11	25%	1	2%	0	0%	1	2%	0	0%	0	0%	0	0%	0	0%	0	0%	13	30%
2016	**21**																	3	14%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	3	14%
2017	**30**																			0	0%	2	7%	0	0%	0	0%	1	1%	0	0%	0	0%	3	10%
2018	**91**																					6	7%	7	8%	1	1%	0	0%	0	0%	1	1%	15	16%
2019	**94**																							8	9%	3	3%	0	0%	0	0%	0	0%	12	13%
2020	**54**																									4	7%	0	0%	0	0%	0	0%	4	7%
2021	**24**																											2	8%	2	8%	0	0%	4	17%
2022	**42**																													4	10%	1	2%	6	14%
2023	**34**																															0	0%	2	6%
2024	**27**																																	1	4%
Total	**1246**	**20**		**17**		**7**		**14**		**42**		**29**		**22**		**21**		**5**		**0**		**9**		**15**		**8**		**3**		**6**		**2**		**6**		**226**	**18%**