

KNIFE RIVER FISH TRAP REPORT 2022



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Purpose & Methods

The Minnesota Department of Natural Resources (MNDNR) Knife River fish trap is used to monitor the abundance and health of migratory fishes in Minnesota waters of Lake Superior (particularly of migratory Rainbow Trout [steelhead]), and to monitor Sea lamprey control efforts in Lake Superior. The trap captures adult fish migrating upstream and adult and juvenile fish migrating downstream from the Knife River to Lake Superior. The adult trap is operated during annual spawning runs of steelhead in the spring and many other trout (Brook and Brown Trout) and salmon (Coho, Chinook, and Pink Salmon) in the fall.

All adult fish are measured, weighed, and checked for external signs of disease and lamprey wounds. All adult steelhead Rainbow Trout, Brown Trout, or Brook Trout are given a uniquely numbered grey Floy® Tag to identify individual fish for mark-recapture population estimates. All Kamloops Rainbow Trout (clipped, hatchery product) and salmon are given an unnumbered colored plastic tag to indicate when and where they were first captured. Non-lethal scale samples are collected from all adults and a subset of juveniles to evaluate age and growth. All fish are passed upstream of the trap after workup, except for Kamloops Rainbow Trout to limit reproductive and genetic risks associated with introgression into steelhead populations ([Miller et al. 2020](#)).



The number of juvenile fish captured in the juvenile trap each day is adjusted to account for daily flow conditions that might have allowed juvenile fish to bypass the trap. The total number of fish caught per day is adjusted using the average trap efficiency from all mark-recapture trials conducted in previous years (0.58) on all days when the gauge height at the trap was 0.20 or greater. Likewise, the number of adult steelhead captured in the trap is adjusted to account for fish that bypass the trap on their upstream migration. A population estimate is calculated during the spring spawning season using the number of adult steelhead tagged in the adult trap and put upstream, and the number of tagged and untagged steelhead recaptured in the juvenile trap headed back to Lake Superior after spawning. Population estimates for unclipped (wild-produced) steelhead are provided in this report.

Trap Operation Dates and Environmental Conditions Summary

Ice out at Knife River began on approximately April 9 and ice was present until April 17. Traps were first opened on April 11 but closed on April 13 to save the trap from ice and debris; no fish were captured in the traps. The traps were reopened on the afternoon of April 17 and fished through April 30 (14 days), then closed on May 1 to save the trap from high flows and floating debris. The trap was reopened again on May 2 and remained open for 88 days through July 28. The trap was open for fall on September 13 and remained open through October 9 (27 days). The traps were closed for 6 days between October 10 and October 15 to avoid massive amounts of leaves in the river that clog the drum screens at the trap; no fish were captured the previous week prior to shutting the trap on October 10. The trap was reopened on October 16 and closed again on October 18 because the Lake Superior crew was onboard the RV Blue Heron to complete the annual hydroacoustics assessment for Minnesota waters of Lake Superior. The trap was opened again on October 31 and closed for on November 2 for winter. In total, the trap was open for 105 days in the spring (Apr. 9–July 29), closed for 45 days in summer (July 30–Sept. 12), and then reopened for 33 days in the fall (Sept. 13–Nov. 3) (Tables 1 and 2).

Winter conditions extended into early-spring of 2022 with ice out nearly one month later than was observed in 2021 ([Peterson 2021](#)). Decent amounts of snow in winter and rain in spring provided more than adequate stream flows for fish migration in spring 2022. Moderate to high rain events occurred nearly every week throughout April and May which kept river levels high (sometimes unfishable) throughout the spring steelhead run. Streamflow in the spring peaked on May 1 (1,830 ft³/s). Stream conditions remained near the historic median throughout most of the summer and into the fall, driven by peaks in streamflows from sporadic rain events throughout the year. One rain event in the fall (Nov. 10, 1,590 ft³/s) mimicked an event that occurred in 2021 (Nov. 11, 1,570 ft³/s). The traps were closed prior to this peak streamflow event due to ice formation prior to this date. Streamflow data was provided by the U.S. Geological Survey (monitoring location: [04015330](#); Figure 1).

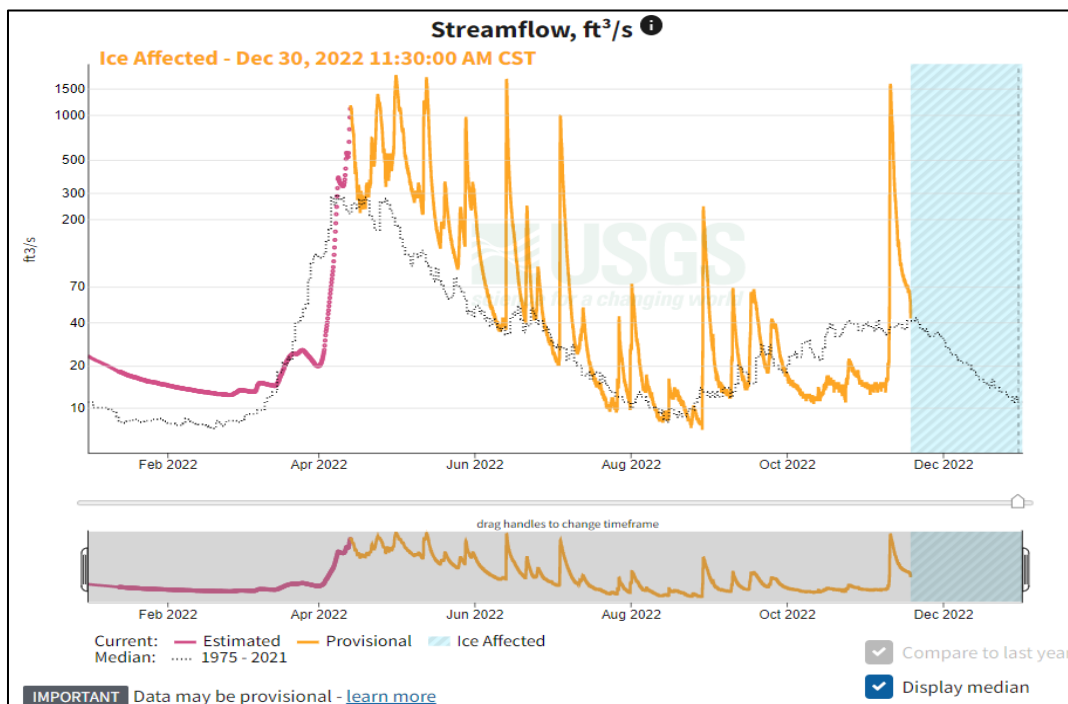


Figure 1. Knife River streamflow (ft³/s) data provided by the U.S. Geological Survey (monitoring location: [04015330](#)).

Catch Summary by Species

Unclipped (wild-produced) Steelhead Rainbow Trout

Unclipped (wild-produced) steelhead were the most abundant juvenile salmonid captured in 2022 (99% of total catch). Typical emigration timing for juvenile steelhead begins with age-2 and older smolts leaving in May, a peak of the age-1 parr in the first week or two of June, and few to no fish captured after the first week of July. This year, however, only four juvenile steelhead were captured before June, most juveniles (mixed age groups) were captured throughout June (78%, 5,259), and decent numbers of fish continued to be collected throughout July (22%, 1,464). The trap was closed for summer in August, nearly one month later than normal (Figure 2). The shift in smolt emigration timing this spring compared to previous years likely resulted from a later than normal winter-to-spring transition and excellent river conditions (i.e., cold water temperatures and stream flow) throughout the spring. Trap operation dates need to remain flexible and reflect the emigration timing observed each year.

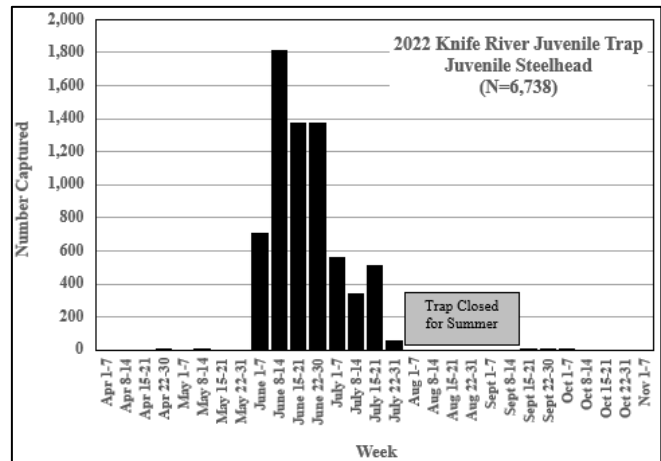


Figure 2. The number of unclipped (wild-produced) juvenile steelhead captured in the Knife River juvenile fish trap by week in 2022.

In total, 6,738 juvenile steelhead were captured in 2022 which was much lower than the historic average of 12,042 (range: 1,856-23,971). After accounting for daily trap efficiencies, the estimated total number of juvenile steelhead that emigrated from Knife River in 2022 was 8,081, which was lower than the historic average of 13,914 (range: 2,069-34,108). Approximately 66% (4,443) of all fish captured were age-1, 33% (2,253) were age-2, and 1% or less were age-0 (41) and age-3 (1) (Figure 3).

The lower than average number of emigrants this spring was somewhat expected. All salmonids have experienced unforgiving environmental conditions in Knife River over the past few years (i.e., drought conditions, low stream flow going into winter, sporadic floods), which likely influenced adult reproduction and spawning success and juvenile survival in streams.

Most juvenile steelhead that emigrate from Knife River in a given year are age-1 steelhead parr. In 2022, the estimated total emigration of age-1 parr was 5,313, nearly half the historic average (10,846 per year); the number of age-2 and older steelhead smolts was lower than average in 2022, but has remained relatively stable over time. Therefore, it is possible that

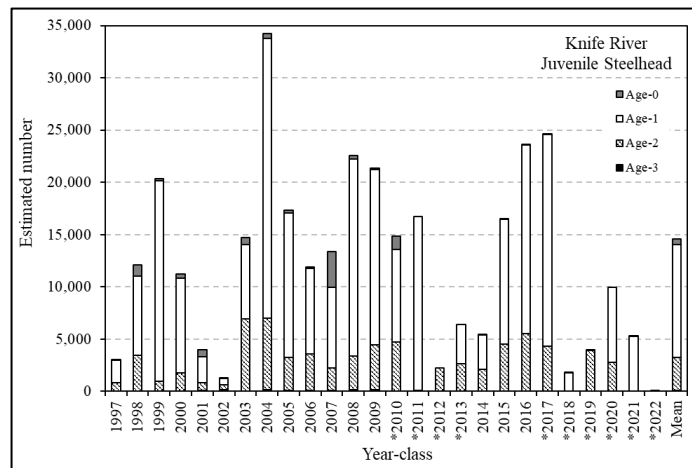


Figure 3. Estimated number of juvenile steelhead emigrants in the Knife River by year-class. The historic average (Mean) excludes all incomplete year-classes shown with an asterisks (*).

either: 1) the low cumulative total catch of juvenile steelhead (all ages) this spring was due to poor survival of the 2020 and 2021 year-classes, or 2) the good environmental conditions throughout the spring and early-summer has kept age-1 juvenile parr in the river and they will emigrate next spring (which is what we want them to do!). The status of the 2021 year-class will not be known until next spring.

Adults that return to Knife River are most often the juveniles that emigrated at age-2 as smolts. Smolts are typically larger than age-1 parr, thus more able to avoid predation in Lake Superior, and most have imprinted to Knife River prior to emigrating to Lake Superior which help them return here ([Negus 2011](#)). The estimated number of age-2 and older emigrants has been higher than the historic average (3,220) in four of the last five trap years. Total smolt production was high for the 2015, 2016 and 2017 year-classes and corresponded to three consecutive years of above average adult steelhead returns in those years. Unfortunately, even one year of trap closure results in missing (incomplete) data for multiple year-classes. For example, the trap was closed for repairs in 2012 and left data incomplete for the 2010 through 2013 year-classes; similar scenario is occurring now for the 2017, 2018, 2019, and 2020 year-classes due to the COVID shutdown in 2020. That said, even with missing data, the number of age-2 and older emigrants per year has been relatively stable and close to historic abundances, and has provided average or above adult returns for nearly a decade. Adult steelhead returns should remain stable over the next few years being supported largely by average or above-average age-2 smolt counts in recent years (Table 1; Figure 4).

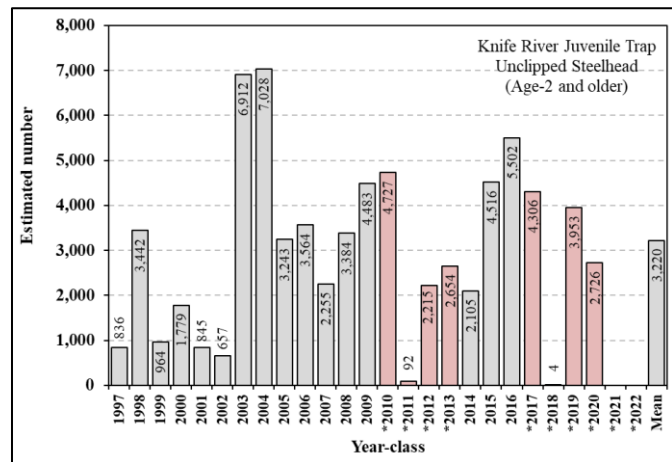


Figure 4. Estimated number of age-2 and older unclipped juvenile steelhead emigrants in the Knife River by year-class. The historic average (Mean) excludes all incomplete year-classes shown with an asterisks (*).

A total of 333 unclipped (wild-produced) adult steelhead were captured in the Knife River adult (upbound) or juvenile (downbound) traps in 2022. Two hundred seventy-nine were captured in the adult trap and 54 in the juvenile trap. The mark-recapture population estimate that accounts for fish that bypassed the trap during upstream migration estimated a total return of 489 (95% C.I.: 426-552) adult steelhead in spring 2022 (Table 1; Figure 5). Approximately 5% (18) of all unclipped steelhead were captured in April, 83% (278) in May, and 11% (37) in June.

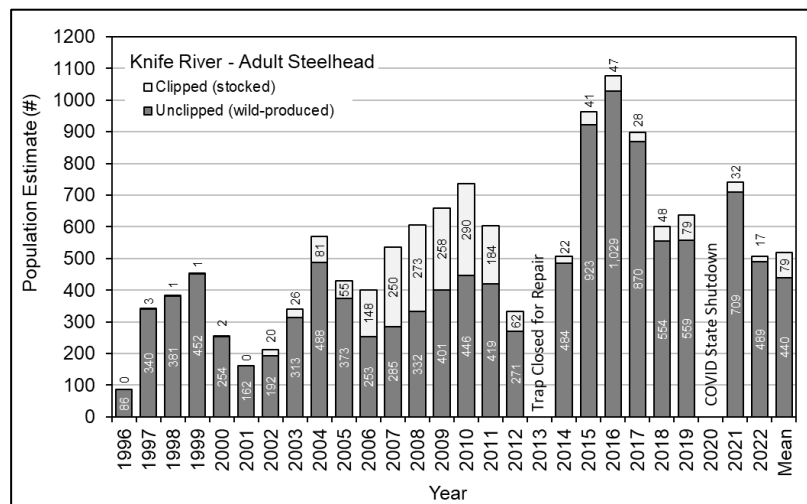


Figure 5. Number of unclipped (wild-produced) and clipped (stocked) adult steelhead that returned to the Knife River in the spring by year from 1996 to 2022, including the historic average (Mean).

Adult steelhead ranged from age-3 through age-12. Approximately 7% (23) were age-4 or younger, 38% were age-5 (59) or age-6 (69), 35% (116) were age-7, and 20% (66) were age-7 or older. Average size of females was 25 inches (range: 17-29) and 4.8 pounds (range: 1.6-6.9). Average size of males was 23 inches (range: 13-30) and 3.8 pounds (range: 0.6-7.2). Nearly half (49%, 164) of all unclipped fish captured had a numbered Floy® Tag from a previous year, and 3% (9) had a tag stub or mark that indicated tag loss. No unclipped steelhead were captured in the fall. Adult steelhead abundances at Knife River have continued to improve over time and this population is able to produce adequate adult returns maintained solely by wild-reproduction under the current management framework ([Goldsworthy et al. 2017](#)).

Clipped (stocked) Steelhead & Kamloops Rainbow Trout

Sixteen clipped steelhead were captured in the spring and five different fin clip combinations were found: 7 right-maxillary (RM), 3 left-pelvic (LR), 1 right-pectoral (RF), 3 adipose plus left-rear (ALR), and 2 adipose plus right-pelvic (ARR) fin clips (Table 1, Figure 1). All 7 RM clipped steelhead were Knife River captive adult broodstock that were originally captured as age-1 parr at the Knife River smolt trap, transported to the French River Coldwater Hatchery (now closed), clipped, and spawned to produce fish to stock. All these fish were tagged and released to Lake Superior in 2018 or earlier. Six were age-7 and 1 was age-9. Five were females that measured 25 to 26 inches and weighed 5.0 to 6.1 pounds, and two were males that measured 25 to 26 inches and weighed 5.1 to 5.4 pounds. No clipped Rainbow trout (steelhead or Kamloops) were captured in the fall (Table 2).

All 4 LR and RF clipped steelhead were captured in the spring. These fish were adult returns from the Lake Superior Steelhead Associations (LSSA) Steelhead Relocation Project. These fish were originally captured at the Knife River juvenile fish trap as age-1 parr, brought back to French River Hatchery, fin clipped, and reintroduced back into a few coldwater tributaries in the upper Knife River watershed. One LR clipped steelhead was age-5 (2017 year-class) and 2 were age-7 (2015 year-class). One LR clipped steelhead was a female that was 26 inches and 6.3 pounds, and 2 were males that measured 24 and 25 inches and 4.0 and 4.2 pounds, respectively. The RF clipped steelhead was age-7 (2015 year-class) and a male that measured 25 inches and weighed 2.9 pounds (Table 2).

The five steelhead with ALR or ARR clips were hatchery-produced steelhead stocked by the Minnesota DNR above barriers in both the Lester and French Rivers (approx. 60,000 per river, 120,000 total annual stocking quota). The Minnesota DNR's new clipped steelhead stocking program began with pre-smolt yearlings stocked in 2018 (2017 year-class); these fish measured (on average) 4-inches total length and were stocked



above barriers in the French and Lester rivers to improve imprinting of juveniles and keep the majority of adult returns to stocked rivers (limit straying). All three ALR clipped steelhead captured in 2022 were 5 years old (2017 year-class) and from the first year-class of the new clipped steelhead stocking program; all three fish were females that measured from 19 to 23 inches and weighed 2.5 to 4.6 pounds. The two ARR clipped steelhead were 4 years old (2018 year-class) and from the second year-class of the new clipped steelhead stocking program; both were females that measured 20 inches and weighed 2.4 and 2.6 pounds (Table 2). Few clipped steelhead are expected to return to Knife River traps because they are not currently stocked (and imprinted) in Knife River.

Six clipped Kamloops were captured in the spring and all were females (Table 2). Two fish were 7 years old and from the 2015 year-class; one had an ALF clip and was 25 inches and 5.9 pounds and one had an ARF clip and was 26 inches and 6.8 pounds. Four fish were 6 years old and from the 2016 year-class; three had an ARR clip and averaged 24 inches (range: 24-25) and 5.5 pounds (range: 4.0-6.8), and one had an ALR clip and was 26 inches and 6.1 pounds. The last year-class of Kamloops was stocked in the French and Lester rivers in 2017 (2016 year-class). Anglers should expect to catch very few Kamloops and more clipped (stocked) steelhead in 2023 and beyond.

Brook Trout

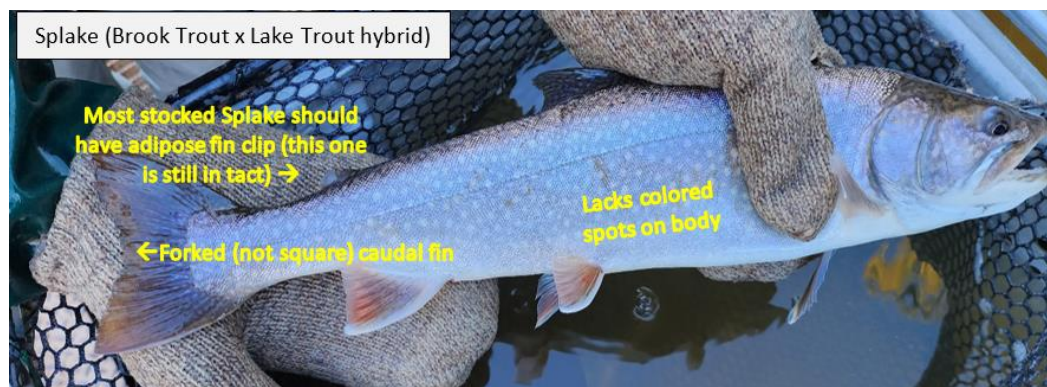
Brook Trout are a primary management species in the Knife River and populations are currently supported solely by natural reproduction. Thirteen Brook Trout were captured in the juvenile trap in 2022, all in the spring. Average total length was 8.5 inches (range: 7.0-10.7). One was age-1, 9 were age-2, and 3 were age-3. Six fish that were 8 inches or larger were given a numbered pink Floy® Tag prior to releasing downstream. One fish had a regrown left-pelvic fin which indicated it was likely a recapture from the [Coaster Genetics Project](#) or was previously clipped for genetics evaluations at the Knife River trap in previous years. The peak emigration patterns of juvenile Brook Trout at Knife River typically corresponds to the upstream and downstream peak migrations of adult steelhead, and a lesser degree related to seasonal water temperatures than is observed with juvenile steelhead.

Six Brook Trout were captured in the adult trap in spring (Table 1). Five were age-2 and 1 was age-3. Sex was unknown for all fish but one fish that was a male. Average total length was 10.4 inches (range: 9.5–11.3) and 0.2 pounds (range: 0.1-0.2). A small left pectoral fin clip was collected from all Brook Trout for the [Coaster Genetics Project](#), and all fish were given a pink numbered Floy® Tag. One Brook Trout was captured in the adult trap in the fall, a 3 year-old female that measured 15.7 inches and weighed 0.7 pounds. A fin clip was collected and tag was applied to this fish (Table 2). If you catch a Brook Trout (or any other species) with a tag, please **DO NOT** remove the tag. Record the number on the tag and share the information to the [Minnesota DNRs Tagged Fish Reporting website](#).



Splake (Brook Trout x Lake Trout hybrid)

Two Splake (Brook Trout x Lake Trout hybrid) were captured in the adult trap in the fall. These fish were not clipped and were likely stocked by the Michigan or Wisconsin DNR in Lake Superior as a yearling and strayed to Knife River. Both fish were females; one was 18.0 inches and 0.9 pounds and the other was 17.8 inches and 0.8 pounds. Both fish were given an orange unnumbered T-bar tag and released downstream of the trap.



Brown Trout

Brown Trout are a primary management species in the Knife River and populations are currently supported solely by natural reproduction. Fifty-two juvenile Brown Trout were captured in the juvenile trap in 2022, and all were captured in the spring and early-summer (April-July). Average total length was 5.6 inches (range: 3.7-7.4). Thirty were age-1 and 22 were age-2.

One small adult Brown Trout was captured in the adult trap in spring that measured 9 inches and weighed 0.1 pounds; sex was unknown. Only three adult Brown Trout were captured in 2022, and all captured in three days between September 16 and 19. All fish were age-5 and two were females and 1 unresolved sex. The average size was 22 inches (range: 21-22) and 1.8 pounds (range: 2.1-5.8). No Brown Trout were recaptures (repeat spawners) tagged at the Knife River trap in previous years.



Chinook, Coho and Pink Salmon

Chinook, Coho and Pink salmon are not primary management species in Knife River and any of these species captured here are likely produced in other jurisdictions and strayed to Knife River. No juvenile or adult Chinook Salmon were captured in 2021. Juvenile and adult Chinook salmon are very rare at Knife River and the historic annual average return is only 2 fish.

No juvenile Coho salmon were captured in the smolt trap in 2022. Only two adult Coho Salmon were captured in the adult trap in the fall. One was a male captured on September 19 that measured 15.2 inches and the other was a female captured on September 29 that measured 20.9 inches. Two were age-1+, two were age-2+, and two were age-3+. Coho salmon are not abundant at Knife River (historic annual average catch=14 fish), and two of the largest adult returns happened in recent years (53 fish in 2018 and 32 fish in 2019)(Table 2).

No juvenile Pink salmon were captured in 2022. Juvenile Pink salmon are not captured in the Knife River smolt trap because juveniles will leave the river soon after hatching as fry and the trap does not effectively capture very small fish (approx. less than 3 inches total length). Abundant returns of adult Pink salmon typically appear on a two- or three-year cycle. Pink salmon runs were low in 2022, and only five adults were captured in the adult trap. The first Pink salmon was captured on September 19 and all but one were captured in only 5 days (Sept. 19-22); the other fish was captured on October 6. Three were male and two were female. Average size of females was 16.6 inches (range: 16.3-16.9) and 0.7 pounds (both fish), and males was 17.3 inches (range: 16.7-17.9) and 0.8 pounds (range: 0.6-0.8). Anglers can expect Pink salmon to be more abundant in fall of 2023 (Table 2).



Sea Lamprey Wounding Rates

A field guide for classifying Sea Lamprey wounds on fish that is used by agencies throughout the Great Lakes for estimating sea lamprey-induced mortality of target fish species, evaluating the success of the sea lamprey control program, allocating resources for sea lamprey control, and setting fish community targets ([Ebner et al. 2006](#)). This guide has been used by Minnesota DNR at the Knife River traps since 2008. Prior to 2008, lamprey wounds were recorded but without any



sort of classification system. Annual wounding rates observed at the Knife River traps are regularly shared with others who manage the Lake Superior fishery (i.e., [Lake Superior Technical Committee](#)).

In total, 32 lamprey wounds were found on 345 steelhead Rainbow Trout examined at the Knife River traps in 2022. Ten were classified as fresh wounds (A1-A3 type) and 22 as 'old' wounds (A4-B4 type). Lamprey wounds were only present on Rainbow Trout, all were steelhead except for one B2-type wound on one Kamloops, and all were observed on fish captured in the spring; no steelhead were captured in the fall of 2022. No lamprey wounds were observed on Brown trout, Brook trout, Splake or salmon.

The fresh wounding rate (A1-A3 types) for steelhead Rainbow Trout at the Knife River in 2022 was 2.9% (10 wounds per 345 fish examined), which was higher than the historic average rate from 2008 to 2021 (1.4%; range: 0.4-2.0%) and the highest rate observed since 2008. Combining all wound types, the all wound rate was 9.3% in 2022, which was also higher than the historic average (5.5%; range: 2.7 to 9.8%)(Figure 6). Overall, wounding rates at the Knife River remain relatively low and below maximum target wound rates for other species (e.g., annual fresh wound standards for Lake Trout is less than 3.0% with 5% being critical concern; [Goldsworthy et al. 2017](#)).

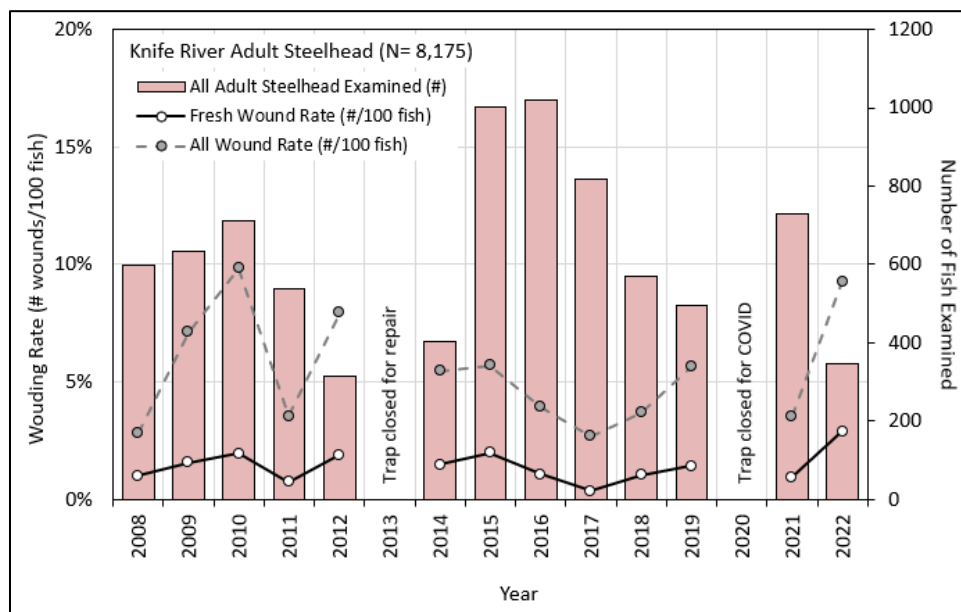


Figure 6. Fresh lamprey wounding rate (#/100 fish with A1-A3 wounds), all lamprey wound rate (#/100 fish), and the number of adult steelhead captured and evaluated for lamprey marks by year.

SUPPLEMENTAL REPORT

Knife River Fish Trap Report
2022

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Date: 2023.02.17 09:27:37 -06'00'

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Date: 2023.02.21 20:45:33 -06'00'

Table 1. Operation dates and total number of adult fish collected at the Knife River adult trap in the spring by year and species, including the historic averages (Mean). The trap was not operated in 2013 (trap repairs) and 2020 (COVID).

Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Mean
Date trap was opened	4/23	4/14	3/25	4/7	3/26	4/18	4/14	4/21	4/7	4/10	4/6	4/15	4/16	4/12	3/28	4/18	3/25	—	4/28	4/13	3/27	4/5	4/24	4/5	—	4/1	4/9	4/9
Date trap was closed	6/5	6/30	6/22	6/30	6/30	6/30	6/30	6/28	6/30	6/30	5/25	6/26	6/30	6/22	5/31	6/20	6/1	—	7/7	7/6	7/19	7/14	7/5	7/12	—	6/24	7/29	6/27
Days trap was open	43	77	89	84	96	73	77	68	84	81	49	72	75	71	64	63	68	—	70	85	115	101	68	99	—	84	105	78
Brook Trout	0	3	3	7	3	11	1	0	0	0	1	0	0	0	0	4	6	—	0	7	39	5	14	5	—	7	6	5
Brown Trout	0	2	0	1	2	4	2	0	1	0	0	0	0	0	0	0	1	—	0	5	4	0	2	0	—	1	1	1
Chinook Salmon	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	—	0	0	0	0	0	0	—	0	0	0
Kamloops (clipped)	37	48	48	82	65	108	44	72	120	97	27	22	21	46	26	29	20	—	29	17	19	44	43	58	—	15	6	46
Steelhead (clipped)	29	28	20	43	120	40	76	111	201	136	204	284	274	258	290	182	62	—	21	47	47	28	48	71	—	44	16	107
<i>Adipose only (A)</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0	1	1
<i>Adipose + Left-pelvic (ALR)</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0	—	2	2	1
<i>Adipose + Right-pelvic (ARR)</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0	—	1	2	1
<i>Left-pelvic (LR)</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0	3	—	8	3	4
<i>Right-pectoral (RF)</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	2	—	4	1	2
<i>Right-pelvic (RR)</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	—	0	0	1
<i>Right-maxillary (RM)</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	45	64	—	29	7	36
Steelhead (unclipped) ¹	86	340	381	452	254	162	192	313	488	373	253	285	332	401	446	419	271	—	484	923	1,029	870	554	559	—	709	489	440
All Species	153	426	480	585	477	334	357	568	862	656	562	593	627	705	765	634	360	—	533	999	1,138	947	661	693	—	776	518	616

¹ Numbers estimated using a mark-recapture population estimate to account for fish that bypassed the trap during upstream migration.

Table 2. Operation dates and total number of adult fish collected at the Knife River adult trap in the fall by year and species, including the historic averages (Mean). The trap was not operated in fall 2012 and 2013 (trap repairs), and 2020 (COVID).

Year	1996	1997	1998	1999	2000	2001	2002	2003	2004 ¹	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Average
Date trap was opened	8/19	8/18	8/17	8/9	8/4	8/13	8/16	9/8	9/8	9/5	9/5	9/5	9/2	9/21	9/13	9/19	—	—	9/9	9/9	9/6	8/25	9/4	8/30	—	9/7	9/13	8/31
Date trap was closed	11/8	11/7	11/6	11/12	11/10	11/16	11/8	11/7	11/5	11/4	11/4	11/2	11/7	11/7	11/5	11/4	—	—	11/6	11/18	11/16	11/6	11/7	11/6	—	11/1	11/2	11/7
Days trap was open	81	81	81	95	98	95	84	60	58	60	60	58	66	47	53	46	—	—	58	71	72	74	63	62	—	56	33	67
Brook Trout	0	2	3	1	0	3	2	0	3	2	0	1	1	0	0	1	—	—	1	1	1	3	2	0	—	0	1	1
Brown Trout	32	67	43	61	58	20	45	30	27	26	9	7	17	8	7	1	—	—	7	5	5	0	15	23	—	28	3	23
Chinook Salmon	4	1	9	9	2	0	2	0	0	0	0	11	5	0	0	0	—	—	1	3	0	1	3	1	—	0	0	2
Coho Salmon	6	16	37	10	5	1	16	0	3	3	0	9	11	9	71	0	—	—	0	8	17	5	53	32	—	6	2	13
Kamloops	4	0	12	1	4	1	0	0	0	0	0	5	7	0	3	10	—	—	0	2	0	0	1	0	—	0	0	2
Pink Salmon	0	9	20	39	48	0	3	0	0	2	7	10	0	2	258	103	—	—	0	1	4	207	2	10	—	94	5	34
Rainbow Trout - unknown type ²	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0	—	—	0	0	0	0	0	0	—	0	0	1
Splake (Brook Trout x Lake Trout)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	—	—	0	1	0	0	1	4	—	1	2	0
Steelhead Rainbow Trout (clipped)	2	0	16	6	9	0	2	0	0	7	0	22	10	5	2	0	—	—	0	5	3	1	10	7	—	0	0	4
Adipose only (A)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0	0	0
Adipose + Left-pelvic (ALR)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	0	0	1
Adipose + Right-pelvic (ARR)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0	—	0	0	0
Left-pelvic (LR)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	0	—	0	0	0
Right-pectoral (RF)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0	2	—	0	0	1
Right-pelvic (RR)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0	0	—	0	0	0
Right-maxillary (RM)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	3	—	0	0	3
Steelhead Rainbow Trout (unclipped)	60	16	105	17	37	19	23	6	49	9	1	50	49	21	18	2	—	—	8	155	22	25	35	53	—	31	0	34
All Species	108	111	245	144	163	44	93	36	96	49	17	115	100	45	359	117	—	—	17	181	52	242	122	130	—	160	13	115

¹ Counts made from fishway and video surveillance; ² Specific clips/strains were not identifiable on videotape