

Final Report

Fish Populations in Waterbodies of the Willow Project

Area: 2017

December 2017

Prepared for:

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EXECUTIVE SUMMARY

During summer 2017, fyke nets were used to sample 13 sites in 6 small drainages in the eastern National Petroleum Reserve–Alaska (NPR-A). When possible, fyke nets were arranged to sample fish moving both upstream and downstream. Fish longer than 180 millimeters (mm) in fork length (FL), excluding salmon, were tagged to evaluate movement patterns within and between streams.

Sampling began in June, as stream flows were receding from peak break-up flows. At the onset of sampling on June 17, channel ice had melted and water temperatures had reached 7.5 to 10.5 degrees Celsius (°C) across sites. Temperatures increased over the June sampling period and peaked on July 28, ranging from 13.9 to 17.9 °C across sites. Water temperatures cooled by late summer to 4.5 to 4.9 °C by the end of sampling on September 2. In addition to measuring water temperature, each time nets were set and checked for fish, specific conductance, pH, dissolved oxygen, and turbidity were measured.

A total of 38,017 fish comprised of 11 species were captured across the 13 sites in the survey area. Ninespine stickleback were the most abundant fish species captured and accounted for over 80% of the total catch, followed by Arctic grayling, broad whitefish, and least cisco. Excluding ninespine stickleback, Arctic grayling, broad whitefish, and least cisco accounted for 85%, 7%, and 4% of the total catch, respectively. All other species accounted for $\leq 1\%$ of the total catch.

Considerable differences in species composition across sites were observed. Seasonal sampling at 9 of the 13 sites captured at least 5 species of fish. Stream Willow 4 produced the most diverse catch, with 10 species caught at one site (W17401) comprised of 81% Arctic grayling, 6% least cisco, 6% ninespine stickleback, 2% broad whitefish and 2% round whitefish. Willow 3 (W17301/Lake M0015), a stream that flows out of Lake R0064 and through Lake M0015, produced the least diverse catch, with only ninespine stickleback captured. However, the Lake M0015 set (W17301) also produced the most fish, with 24,101 ninespine stickleback captured from only 70.5 hours of sampling effort.

Length frequency distributions of Arctic grayling and broad whitefish showed seasonal patterns of different size classes of fish using the sampled streams throughout the open water season. During June, high numbers of apparent age-1 and age-2 fish, and relatively fewer, but larger-sized Arctic grayling and broad whitefish were captured. The bulk of the larger-sized Arctic grayling (> 250 mm) were likely moving upstream to spawn or had already spawned and were redistributing for recovery and rearing. Confirmation of Arctic grayling spawning was documented by the abundance of age-0 fish, later captured in July. The bulk of larger-sized broad whitefish were also likely moving upstream to summer feeding habitats in headwater lakes. Shifts in the bimodal distribution of fish between approximately 50 to 200 mm were observed from June to July, thus indicating clear trends in growth of age-1 and age-2 fish. During August, the growth of age-0, age 1, and age-2 fish was again observed; however, their abundance was considerably less than that of July. Similarly, low numbers of larger-sized fish were captured. Regardless of size, the majority of Arctic grayling and broad whitefish captured in August were moving downstream, likely to overwintering habitats and to spawning habitats for mature broad whitefish.

There were 974 fish tagged and released between the 13 fyke net sites. A total of 6 species were tagged, with Arctic grayling accounting for over 77% of fish tagged, and least cisco, broad whitefish, round whitefish, humpback whitefish, and burbot accounting for the remainder. Of these fish, 166 were

recaptured in addition to two fish tagged in 2013. Recaptured fish were at large for a mean and median of 21.9 and 1.1 days, respectively. Of recaptured fish, 26% were recaptured at different locations than their site of tagging. Two recaptured Arctic grayling that had been tagged in 2013 were at large for close to 1,500 days, increased in length by over 90 mm, and were each captured nearly 60 river miles from the location they were tagged on the Tinmiaqsiugvik (Ublutuoch River).

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**FISH POPULATIONS IN WATERBODIES OF THE WILLOW PROJECT
AREA: 2017**

Final Report

December 2017

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1. INTRODUCTION

ConocoPhillips Alaska, Inc. (CPAI) has been exploring for oil within the eastern portion of the National Petroleum Reserve – Alaska (NPR-A) since the winter of 1999/2000. Oil reserves have been located in the region, and the feasibility of developing a producing field in the area is being evaluated. In the Willow project area, several streams exist, including Judy Creek (Figure 1). This report documents the results of the first year of a 3-year study required by: Required Operating Procedure E-14 of the Bureau of Land Management (BLM) July 2008 Record of Decision for the Northeast National Petroleum Reserve – Alaska Supplemental Integrated Activity Plan.

Several waterbodies in the study region have previously been investigated by Netsch *et al.* (1977), and Bendock and Burr (1984). These surveys consisted of 1-day visits at each site for inventory-level surveys over a wide area, with sampling by gill net, seine, minnow trap, and angling. Species reported from Uvlutuuq (Fish Creek) and Iqalliqpiq (Judy Creek) included broad whitefish, Arctic grayling, round whitefish, slimy sculpin and ninespine stickleback. The Tinmiaqsiugvik (Ublutuoch River) was also reported to contain Arctic grayling, slimy sculpin, and ninespine stickleback.

In-depth study of streams in this region began in 2001, with the first detailed examination of fish habitats and populations in the eastern NPR-A study area (Moulton 2002, 2003, 2005, 2006, 2009; Moulton and Moulton 2014; Moulton and Seigle 2007, Morris 2003). Alaska Department of Fish and Game (ADF&G) participated in the 2001 study with a detailed radio-telemetry program to provide details of fish populations in the eastern NPR-A and the habitats used by those populations (Morris 2003). The University of Alaska Fairbanks (UAF) and BLM jointly conducted a study in 2017 that demonstrated the importance of small tundra streams in the eastern NPR-A as key summer foraging habitats for fish (McFarland et al. 2017). Studies were designed to ensure oilfield facilities are sited, designed, and constructed in a manner to avoid or minimize impacts.

The goal of the current multi-year study is to develop information needed to evaluate fish populations using waterbodies that could potentially be impacted by oilfield development.

Objectives of the 2017 fish survey were to:

1. obtain information on the composition and seasonal distribution of fish populations within the drainages
2. obtain information on fish movements within the drainages.

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2. METHODS

2.1. Biological Sampling

During summer 2017, fyke nets were used to sample waterbodies within the project area (Figure 1). Sampling was conducted at 13 locations throughout the open water season during the post break-up period in June, July, and in late August/early September just before freeze-up. Sample sites were established in Judy Creek, and five tundra stream/lake system tributaries to Judy Creek (Figure 1, Table 1). Fyke net sites were established in lakes within the drainage of two of the sampled streams. Two wetland sites were sampled once during the summer season with seine nets to evaluate potential fish bearing habitat, one of which was later sampled by a fyke net in an upstream lake. Seine net sites (SN171 and SN172) are shown on Figure 1 and Table 1; however, data collected from them is not otherwise presented because the sites were not used for further fisheries investigations.

Sampling was conducted by fyke net so that sampling could continue 24 hours per day and fish could be released unharmed. Fyke nets had an opening 0.9 meters (m) deep by 1.1 m wide, the trap end was 4.9 m long, made of 9.5 millimeters (mm) mesh. The wings (5 m long) and center lead (15 m long) were made of 12.7 mm mesh. Fyke nets were arranged to sample fish moving both upstream and downstream, and when possible, two nets were deployed – one facing upstream and one downstream to help identify direction of fish movement. Nets were checked and fish released daily. Duration of each set was recorded to allow calculation of catch rates.

Fish caught were identified, measured to the nearest mm in fork length (FL), and released near the site of capture. Broad, humpback, and round whitefish, least cisco, burbot, and Arctic grayling longer than 180 mm FL were tagged with individually numbered tags to evaluate movement patterns within the sampling area. Tags consisted of Floy® FF-94 T-bar anchor tags for fish between 180 and 249 mm FL and FD-94 T-bar anchor tags for fish 250 mm FL or larger.

2.2. Water Chemistry Sampling

Water chemistry parameters were measured at each net set and checked to assess habitat conditions during sampling periods. A calibrated YSI ProPlus water quality meter was used to measure stream temperature, specific conductance, dissolved oxygen percent (%) saturation, and dissolved oxygen concentration in milligrams per liter (mg/L). A water sample was also collected at each site and returned to the field laboratory for determination of potential hydrogen (pH) and turbidity. pH was measured with an Oakton Acorn Series 5 pH meter and turbidity was measured with an H.F. Scientific turbidimeter.

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3. RESULTS AND DISCUSSION

3.1. Physical Environment

Sampling in 2017 began in June as stream flows were receding from peak break-up flows. At the onset of sampling on June 17, channel ice had melted and water temperatures had reached 7.5 to 10.5 degrees Celsius (°C) across sites. Temperatures increased over the June sampling period and ranged from 12.1 to 15.2 °C on June 24. At the onset of July sampling on July 21, water temperatures ranged from 11.3 to 13.9 °C and generally increased during the sampling period; however, water temperatures fluctuated from 13.9 to 17.9 °C by the end of the sampling period on July 28. By late August, water temperatures had cooled to 5.5 to 6.6 °C and continued to cool to 4.5 to 4.9 °C by the end of the sampling period on September 2.

Specific conductance rose slowly at all sites between June and July sampling as snow melt and runoff decreased, and remained relatively stable in August. pH values slightly increased through the summer and were generally in the range of 7.0 to 8.4. Turbidity was generally highest at all sites during the June and August sampling periods, likely due to high runoff resulting from snow melt in June and precipitation events in August/September. Turbidity was lowest in the smaller tundra streams and lakes, which cumulatively averaged 3.79 Nephelometric Turbidity Units (NTU). Conversely, turbidity was highest at the Judy Creek sites and averaged 7.58 NTU, likely because of the higher stream order and consequential increased downstream transport of suspended sediment. Water chemistry parameters are presented in Appendix A.

3.2. Biological Observations

3.2.1. Species Composition

A total of 38,017 fish comprised of 11 species were captured across the 13 sites in eastern NPR-A study area in 2017. Ninespine stickleback were the most abundant fish species captured and accounted for over 80% of the total catch, followed by Arctic grayling, broad whitefish, and least cisco (Table 2A and Table 2B, Figure 3). Excluding ninespine stickleback, Arctic grayling accounted for 85% of the total catch, followed by broad whitefish and least cisco, which accounted for 7%, and 4% of the total catch, respectively. All other species accounted for $\leq 1\%$ of the total catch (Table 2A and Table 2B, Figure 3). Fish catch rate was highest in Willow 3 at the outlet of Lake M0015, and consisted entirely of ninespine stickleback. Excluding ninespine stickleback, the highest catch rate occurred in Judy Creek, followed by Willow 2, Willow 4, and Judy Creek Kayyaaq (Table 2B).

Resident fish were captured at all sites. Anadromous fish were captured at all sites except Willow 1 and Willow 3. Arctic grayling spawning was identified at all sampled sites, excluding Willow 3. Sockeye and chum salmon spawning was identified at two sites, Judy Creek Kayyaaq and Willow 4. Judy Creek was identified as a major migratory corridor for all species sampled.

Substantial differences in species composition were found among sites. Seasonal efforts at 9 of the 13 sites captured at least 5 species of fish (Figure 4 and Table 2). Willow 4 produced the most diverse catch, with 10 species caught at one site (W17401), comprised of 81% Arctic grayling, 6% least cisco, 6% ninespine stickleback, 2% broad whitefish and 2% round whitefish. Willow 3 (W17301) produced the least diverse

catch, with only ninespine stickleback captured. However, Willow 3 (W17301, Lake M0015) also produced the most fish, with 24,101 ninespine stickleback captured from only 70.5 hours of sampling effort.

Fyke net capture efficiency at Judy Creek sampling sites (J1701, J1704, J1703, J1702) and Judy Creek Kayyaaq (JK1701, JK1702, JK1703) was occasionally compromised due to the continuously shifting sand substrate, coupled with relatively high water velocities (which scoured or buried nets) and wide/deep stream channels. Nets were strategically placed in areas sheltered from these obstacles and closely monitored and improved to maximize catch rate efficiency. Therefore, results from these sites are conservative and underestimate seasonal fish abundance and species composition.

As noted in Section 2.1, seine net sites SN171 and SN172 were sampled once in the season for exploratory purposes. No fish were captured at seine net site SN171 in 3 seine hauls totaling 15 meters. A total of 5 ninespine stickleback were captured at seine net site SN172, located in stream Willow 3, in 3 seine hauls totaling 38 meters. Both sites were later determined insufficient for further sampling efforts; however, a fyke net set was established further upstream from SN172 in Willow 3.

3.2.2. Seasonal and Size Distribution

Paired fyke nets were placed to catch fish moving both upstream and downstream to evaluate patterns in fish movement at 4 sites (Willow 4 (W17401), Willow 2 (W17203), and Judy Creek Kayyaaq (JK1702 and JK1703)) during July and August/September sampling periods. Fyke nets were not paired in June due to high stream discharge and velocity from spring break-up. Paired fyke nets were not practical to use in Judy Creek because the stream width and flow is too large to block with fyke nets. Similarly, paired nets were not used in lake sets in Willow 1 or Willow 3.

Trends in fish movement were observed in catch patterns. Greater numbers of broad whitefish moved upstream in July and downstream in August/September (Figure 5). Movement trends for Arctic grayling were not obvious, as greater numbers of grayling generally moved both upstream and downstream in July, and few fish were captured in August/September, but with a higher proportion moving downstream (Figure 5). Catch rates for most other species also showed greater numbers of fish moving downstream in August/September, particularly ninespine stickleback at Willow 2 (W17203) (Appendix B and Appendix C). Trends in fish movement during the 2017 are consistent with past surveys in the area, which show the bulk of fish moving upstream in June immediately preceding spring break-up and downstream in August, prior to freeze-up (Morris 2003, Moulton and Seigle 2007, Moulton and Moulton 2014).

Adult chum and sockeye salmon moving upstream were captured at two sites: Willow 4 (W17401) and Judy Creek Kayyaaq (JK1703). A total of 15 salmon were caught and comprised of 11 chum and 4 sockeye salmon. Nine (9) chum salmon and 4 sockeye salmon were captured at Willow 4 (W17401), while only 2 chum salmon were captured at Judy Creek Kayyaaq (JK1703) (Table 2A and Table 2B). All salmon were captured in the August/September sampling period and were ripe, with the exception of one particularly large green male sockeye salmon.

Ninespine stickleback abundance increased over the season, particularly at lacustrine sites, like Willow 3 (W17301, at the outlet of Lake M0015) and in streams with headwater lake or wetland connections, like sites Willow 2 (W17201, W17203, W17202) and Willow 1 (W17101) (Table 2A and Table 2B, Figure 1).

Length frequency distribution of Arctic grayling showed clear seasonal patterns of different size classes of fish using the sampled drainages (Figure 6). During June, high numbers of apparent age-1 and age-2 Arctic grayling were captured (shown by the bimodal distribution of fish between 50 mm and 150 mm). During this time period, relatively low numbers of a wide range of larger sized fish were also captured. The bulk of the larger sized Arctic grayling (> 250 mm) were likely moving upstream to spawn or were moving downstream from spawning areas. Age-0 Arctic grayling were caught in July at all streams, except Willow 3, and indicate successful spawning by Arctic grayling during June. Shifts in the bimodal distribution of fish between approximately 50 mm and 200 mm were observed from June to July, illustrating substantial growth of age-1 and age-2 fish. During August, growth of age-0, age 1, and age-2 fish was again observed; however, their abundance was considerably less than in July. Similarly, fewer numbers of multiple size classes of larger-sized Arctic grayling were captured in August. The majority of all size classes of Arctic grayling captured in August were moving downstream, likely to overwintering habitats.

Trends in broad whitefish length frequency distributions were also observed, though not as clearly as for Arctic grayling (Figure 6). Similar to length trends of Arctic grayling, apparent age-1 and age-2 (75 mm to 150 mm) broad whitefish were captured in June, along with a wide range of larger-sized fish. Most of the fish were likely moving upstream to summer feeding habitats in headwater lakes. During July, age-0 broad whitefish were captured at Judy Creek, Willow 4, and Willow 3. Broad whitefish spawn in the fall with fry emerging under the ice prior to break-up. Fry are distributed downstream by break-up flows and then begin to distribute to rearing areas. Because no age-0 broad whitefish were caught until July, it is likely that any significant spawning or overwintering areas for the species are a considerable distance away from the project area; likely in the Colville River, or potentially the lower Tinmiaqsiugvik (Ublutuoch River). During August, the bulk of all size classes of broad whitefish moved downstream, likely towards overwintering habitats and towards spawning habitats for mature adults.

3.2.3. Tag Returns

During 2017, 974 fish were implemented with a uniquely numbered tag. A total of 6 species were tagged, with Arctic grayling accounting for over 77% of fish tagged. Least cisco, broad whitefish, round whitefish, humpback whitefish, and burbot accounted for 8%, 6%, 5%, 2%, and < 1% of tags deployed, respectively (Table 3). Nearly 50% of the tagged fish were released at sites JK1702 and W17401. Sites W17101, J1702, W17202, J1704, and JK1701 accounted for < 5 % of the released tagged fish (Table 3).

There were 226 recaptures of tagged fish released in 2017 and two Arctic grayling recaptures that had been tagged in 2013 (Table 4, Appendix D). Of the released fish, 166 were recaptured at least once (Table 4, Appendix D). Arctic grayling comprised 96% of the fish recaptured. Round whitefish accounted for 3% and least cisco, broad whitefish, and humpback whitefish each accounted for < 1% of fish recaptured. Recaptured fish were at large for a mean and median of 21.9 and 1.1 days, respectively. Twenty-six percent (26%) of the fish were recaptured at different locations than they were released from (Table 4, Appendix D). The two recaptured Arctic grayling from 2013 were at large for 1,497 and 1,396 days, increased in length by 91 mm and 95 mm, and were each captured nearly 60 river miles from the location they were tagged in the Tinmiaqsiugvik drainage (Ublutuoch River).

4. CONCLUSION

Sampling during 2017 indicates that the study area streams are used by fish species common to the region, including Alaska blackfish, Arctic grayling, broad whitefish, burbot, chum salmon, humpback whitefish, least cisco, ninespine stickleback, round whitefish, slimy sculpin, and sockeye salmon. Ninespine stickleback, Arctic grayling, and broad whitefish were most abundant in the streams sampled. Judy Creek was identified as a major migratory corridor for all species sampled. Evidence of Arctic grayling spawning was observed at all streams except Willow 3, and sockeye and chum salmon spawning was identified in Judy Creek Kayyaaq and Willow 4. The abundance of multiple size classes of adult and juvenile Arctic grayling and broad whitefish across sites, including age-0 fish, suggests the relative importance of area streams for both species.

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TABLES

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Table 1. Location of fyke and seine net stations fished in eastern NPR-A during 2017.

| Station | Location | Dates Fished | Latitude | Longitude (NAD83) |
|---------------------------|--|--|-----------------|--------------------------|
| Judy Creek Sites | | | | |
| J1701 | Judy Creek | Jun 17-24 Jul 21-28 Aug 27-30 | 70.18578 | 151.96089 |
| J1702 | Judy Creek | Aug 27-Sep 2 | 70.15047 | 152.08235 |
| J1703 | Judy Creek | Jul 21-28 | 70.14600 | 152.10800 |
| J1704 | Judy Creek | Jun 17-24 | 70.14725 | 152.12787 |
| Judy Creek Kayyaaq | | | | |
| JK1701 | Judy Creek Kayyaaq | Jun 17-19 | 70.20281 | 152.07515 |
| JK1702 | Judy Creek Kayyaaq Judy Creek Kayyaaq | Jun 17-24 Jul 21-28 | 70.18517 | 152.12392 |
| JK1703 | Judy Creek Kayyaaq | Aug 26-Sep 2 | 70.18068 | 152.14101 |
| Willow 1 Sites | | | | |
| W17101 | Unnamed trib to Judy Creek | Jun 17-24 Jul 21-28 Aug 28-Sep 2 | 70.16694 | 151.86176 |
| Willow 2 Sites | | | | |
| W17201 | Unnamed trib to Judy Creek | Jun 18-24 | 70.17058 | 151.94106 |
| W17202 | Unnamed trib to Judy Creek | Jun 18-19 Jul 24-28 | 70.15627 | 151.93256 |
| W17203 | Unnamed trib to Judy Creek | Jun 18-24 Jul 21-28 Aug 26-Sep 2 | 70.14050 | 151.95709 |
| Willow 3 Sites | | | | |
| W17301 | M0015 | Jul 21-24 | 70.11221 | 152.07718 |
| Willow 4 Sites | | | | |
| W17401 | Unnamed trib to Judy Creek | Jun 17-24 Jul 21-28 Aug 26-Sep 2 | 70.09472 | 152.18240 |
| Seine Net Sites | | | | |
| SN171 | Unnamed wetland | 24-Jun | 70.19886 | 152.25694 |
| SN172 | Unnamed wetland | 24-Jun | 70.11557 | 152.09387 |

Table 2. Comparison of number of fish caught a), and catch rate of fish captured b) at fyke net stations in eastern NPR-A streams during 2017.

a) Number of fish caught

| Species | Judy Creek | | | Judy Creek Kayyaaq | | | Willow 1 | Willow 2 | | Willow 3 | Willow 4 | Total catch | % Total catch | % Total catch* | | |
|-----------------------|-------------|-----------|------------|--------------------|-----------|------------|-----------|-------------|------------|------------|-------------|--------------|---------------|----------------|--------------|-------------|
| | J1701 | J1702 | J1703 | J1704 | JK1701 | JK1702 | JK1703 | W17101 | W17201 | W17202 | W17203 | | | | W17301 | W17401 |
| Alaska blackfish | 1 | | | | | | 94 | | 2 | | | 1 | 98 | < 0.01 | 0.01 | |
| Arctic grayling | 1317 | 12 | 115 | 266 | 10 | 494 | 17 | 154 | 348 | 348 | 1443 | | 1261 | 5785 | 0.15 | 0.85 |
| Broad whitefish | 237 | | 86 | 6 | 1 | 40 | 28 | | 17 | 5 | 12 | | 33 | 465 | 0.01 | 0.07 |
| Burbot | 1 | | | | | | | | | | | | | 1 | < 0.01 | < 0.01 |
| Chum salmon | | | | | | | 2 | | | | | | 9 | 11 | < 0.01 | < 0.01 |
| Humpback whitefish | | | | | 2 | 14 | 8 | | 3 | | | | 6 | 33 | < 0.01 | < 0.01 |
| Least cisco | 72 | | 38 | 6 | 3 | 57 | 9 | | 6 | | 2 | | 100 | 293 | 0.01 | 0.04 |
| Ninespine stickleback | 43 | 5 | 104 | 10 | 3 | 2 | 6 | 2025 | 12 | 87 | 4728 | 24101 | 98 | 31224 | 0.82 | |
| Round whitefish | 28 | | 1 | 1 | | 11 | 7 | | | 3 | | | 38 | 89 | < 0.01 | 0.01 |
| Slimy sculpin | 7 | | | 6 | | | | | | | | | 1 | 14 | < 0.01 | < 0.01 |
| Sockeye salmon | | | | | | | | | | | | | 4 | 4 | < 0.01 | < 0.01 |
| Total Catch | 1706 | 17 | 344 | 295 | 19 | 618 | 77 | 2273 | 394 | 445 | 6185 | 24104 | 1551 | 38017 | 38017 | 6793 |
| Number of Species | 8 | 2 | 5 | 6 | 5 | 6 | 7 | 3 | 6 | 5 | 4 | 1 | 10 | 11 | 11 | 10 |
| Effort (hours) | 396.67 | 141.1 | 168.3 | 33.1 | 43.6 | 502.1 | 327.8 | 459.1 | 143.6 | 123.1 | 797.6 | 70.5 | 845.1 | 4051.67 | 4051.67 | 4051.67 |

b) Catch rate (fish per day)

| Species | Judy Creek | | | Judy Creek Kayyaaq | | | Willow 1 | Willow 2 | | Willow 3 | Willow 4 | Total | | |
|---------------------------------------|---------------|-------------|--------------|--------------------|--------------|--------------|-------------|---------------|--------------|--------------|---------------|----------------|--------------|---------------|
| | J1701 | J1702 | J1703 | J1704 | JK1701 | JK1702 | JK1703 | W17101 | W17201 | W17202 | W17203 | | W17301 | W17401 |
| Alaska blackfish | 0.06 | | | | | | | 4.91 | | 0.39 | | | 0.03 | 0.58 |
| Arctic grayling | 79.68 | 2.04 | 16.40 | 192.87 | 5.50 | 23.61 | 1.24 | 8.05 | 58.16 | 67.85 | 43.42 | | 35.81 | 34.27 |
| Broad whitefish | 14.34 | | 12.26 | 4.35 | 0.55 | 1.91 | 2.05 | | 2.84 | 0.97 | 0.36 | | 0.94 | 2.75 |
| Burbot | 0.06 | | | | | | | | | | | | | 0.01 |
| Chum salmon | | | | | | | 0.15 | | | | | | 0.26 | 0.07 |
| Humpback whitefish | | | | | 1.10 | 0.67 | 0.59 | | 0.50 | | | | 0.17 | 0.20 |
| Least cisco | 4.36 | | 5.42 | 4.35 | 1.65 | 2.72 | 0.66 | | 1.00 | | 0.06 | | 2.84 | 1.74 |
| Ninespine stickleback | 2.60 | 0.85 | 14.83 | 7.25 | 1.65 | 0.10 | 0.44 | 105.86 | 2.01 | 16.96 | 142.27 | 8204.60 | 2.78 | 184.95 |
| Round whitefish | 1.69 | | 0.14 | 0.73 | | 0.53 | 0.51 | | | 0.58 | | | 1.08 | 0.53 |
| Slimy sculpin | 0.42 | | | 4.35 | | | | | | | | | 0.03 | 0.08 |
| Sockeye salmon | | | | | | | | | | | | | 0.11 | 0.02 |
| Total CPUE (per 24 hr. period) | 103.22 | 2.89 | 49.06 | 213.90 | 10.46 | 29.54 | 5.64 | 118.82 | 64.51 | 86.76 | 186.11 | 8204.60 | 44.05 | 225.19 |
| Number of Species | 8 | 2 | 5 | 6 | 5 | 6 | 7 | 3 | 6 | 5 | 4 | 1 | 10 | 11 |

* = Not including ninespine stickleback

Table 3. Fish tagged and released by station during 2017.

| Species | Fish release stations | | | | | | | | | | | | | Total fish released |
|--------------------------|-----------------------|----------|-----------|-----------|--------------------|------------|-----------|----------|------------|----------|------------|----------|------------|---------------------|
| | Judy Creek | | | | Judy Creek Kayyaag | | | Willow 1 | Willow 2 | | | Willow 3 | Willow 4 | |
| | J1701 | J1702 | J1703 | J1704 | JK1701 | JK1702 | JK1703 | W17101 | W17201 | W17202 | W17203 | W17301 | W17401 | |
| Arctic grayling | 121 | 6 | 58 | 8 | 7 | 205 | 12 | 3 | 78 | 7 | 103 | | 147 | 755 |
| Broad whitefish | 4 | | | | 1 | 4 | 24 | | 13 | 1 | 3 | | 14 | 64 |
| Burbot | 1 | | | | | | | | | | | | | 1 |
| Humpback whitefish | | | | | 2 | 12 | 8 | | 2 | | | | 1 | 25 |
| Least cisco | 6 | | 1 | 2 | 1 | 20 | 8 | | 4 | | 2 | | 36 | 80 |
| Round whitefish | 14 | | | 1 | | 6 | 6 | | 5 | | | | 17 | 49 |
| Total Catch | 146 | 6 | 59 | 11 | 11 | 247 | 58 | 3 | 102 | 8 | 108 | | 215 | 974 |
| Number of Species | 5 | 1 | 2 | 3 | 4 | 5 | 5 | 1 | 5 | 2 | 3 | | 5 | 6 |

Table 4. Locations of tagged fish released and recaptured during 2017.

Note: Shaded cells designate fish released and recaptured at the same location. The release station of two fish was unknown and not presented below.

| Release Stations | Recapture Stations | | | | | | | | | | | | | Total Recaptured | Total Tags Deployed |
|---------------------------|--------------------|----------|-----------|----------|--------------------|-----------|----------|----------|-----------|----------|-----------|----------|-----------|------------------|---------------------|
| | Judy Creek | | | | Judy Creek Kayyaaq | | | Willow 1 | Willow 2 | | | Willow 3 | Willow 4 | | |
| | J1701 | J1702 | J1703 | J1704 | JK1701 | JK1702 | JK1703 | W17101 | W17201 | W17202 | W17203 | W17301 | W17401 | | |
| Judy Creek J1701 | 9 | - | - | - | - | 8 | 1 | - | 4 | - | 3 | - | 8 | 33 | 146 |
| Judy Creek J1702 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 6 |
| Judy Creek J1703 | - | - | 8 | - | - | - | - | - | - | - | 1 | - | - | 9 | 59 |
| Judy Creek J1704 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 11 |
| Judy Creek Kayyaaq JK1701 | - | - | - | - | - | 1 | - | - | - | - | - | - | - | 1 | 11 |
| Judy Creek Kayyaaq JK1702 | - | - | 1 | - | - | 26 | 1 | - | - | - | - | - | - | 28 | 247 |
| Judy Creek Kayyaaq JK1703 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 58 |
| Willow 1 W17101 | - | - | - | - | - | - | - | 4 | - | - | - | - | - | 4 | 3 |
| Willow 2 W17201 | 1 | - | - | - | - | 5 | - | - | 50 | 3 | 10 | - | - | 69 | 102 |
| Willow 2 W17202 | - | - | - | - | - | - | - | - | - | 2 | 3 | - | - | 5 | 8 |
| Willow 2 W17203 | - | - | - | - | - | 1 | - | - | 2 | 1 | 55 | - | - | 59 | 108 |
| Willow 3 W17301 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Willow 4 W17401 | 1 | - | 1 | - | - | 1 | - | - | 1 | - | - | - | 10 | 14 | 215 |
| Ublutuoch River U0901 | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 1 | - |
| Ublutuoch River U1302 | - | - | - | - | - | 1 | - | - | - | - | - | - | - | 1 | - |
| Total | 11 | - | 10 | - | - | 43 | 2 | 4 | 57 | 6 | 72 | - | 19 | 224 | 974 |

FIGURES

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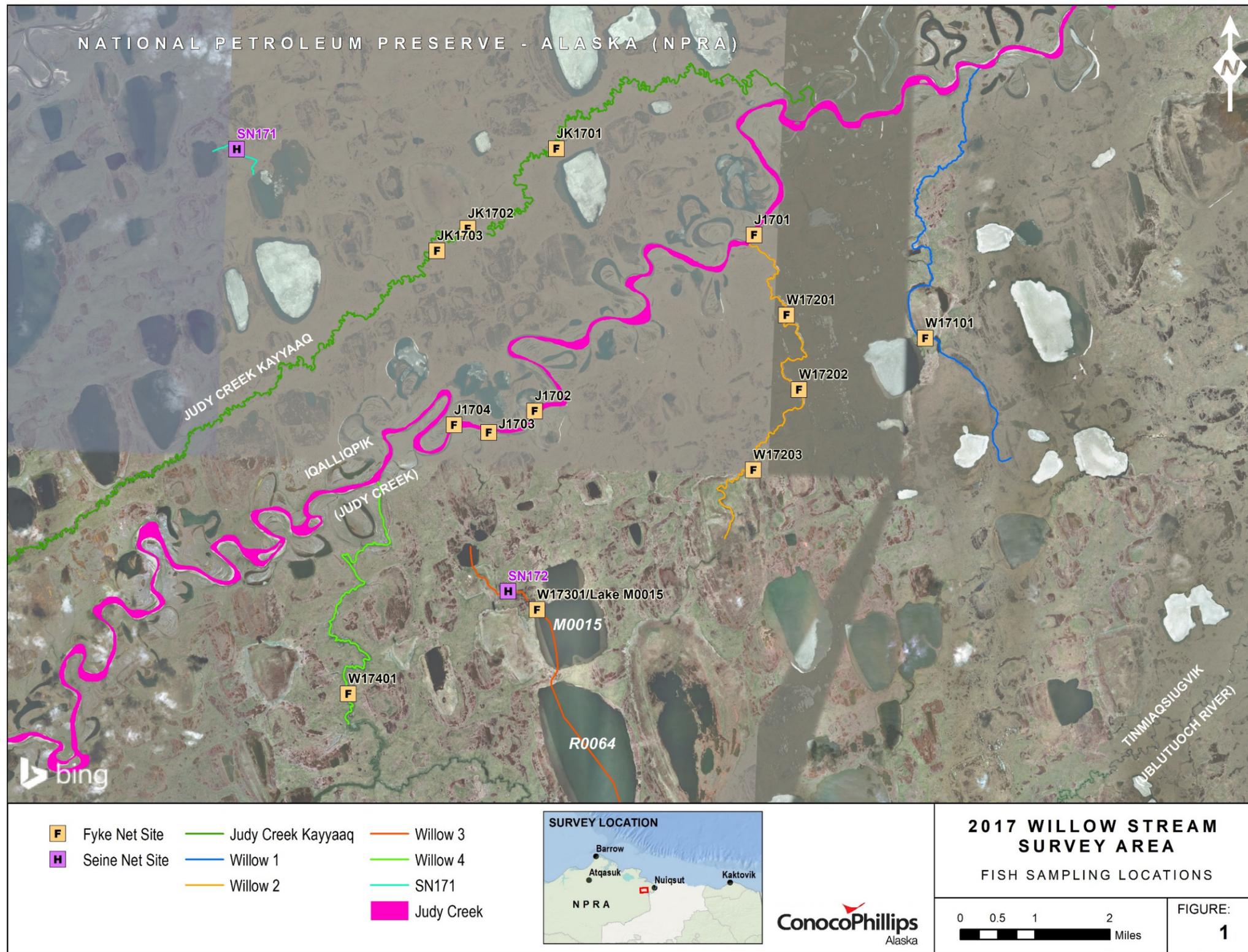


Figure 1. Fyke and seine net locations in the eastern NPR-A study area, 2017.

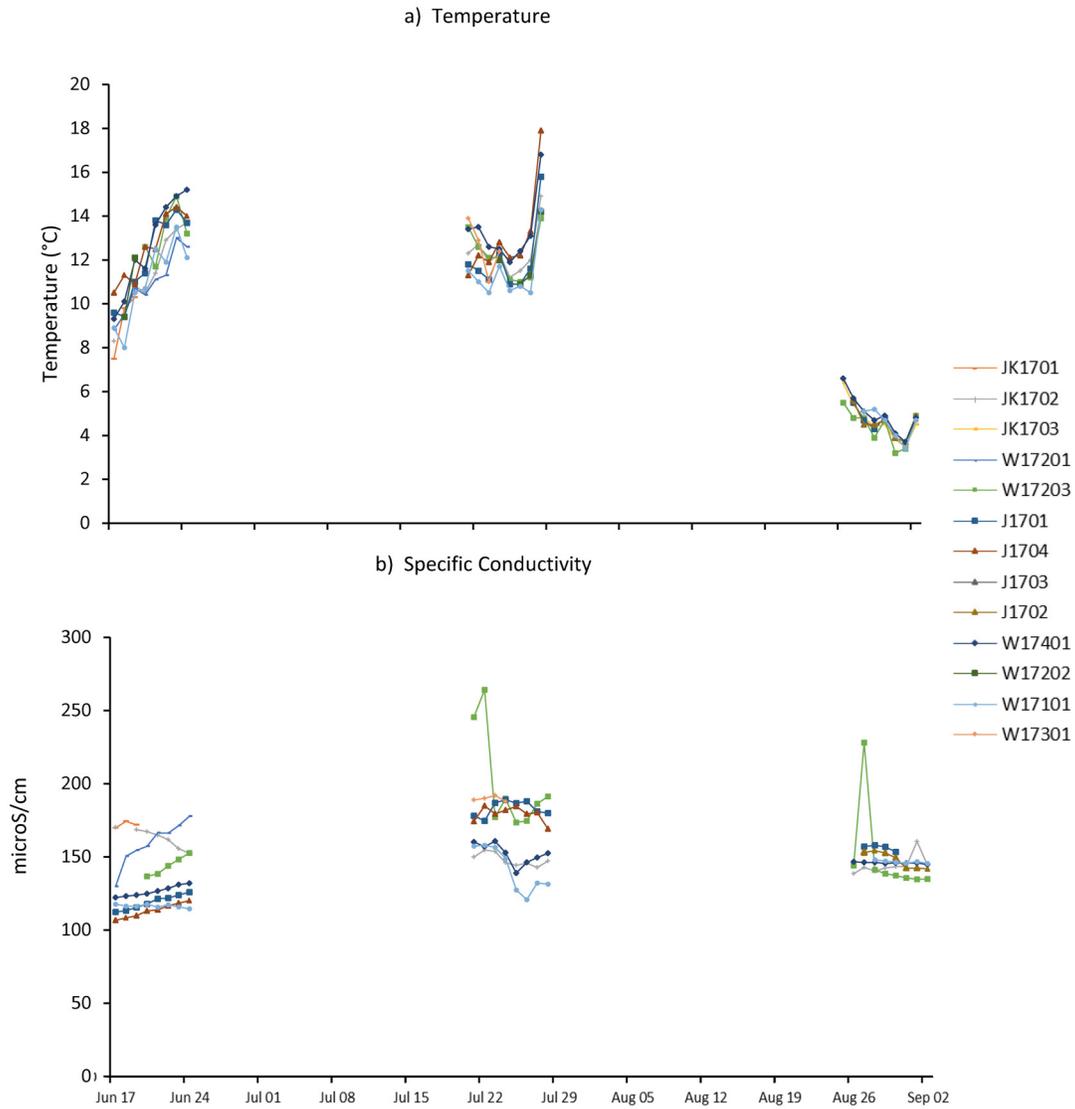


Figure 2. Water temperature a) and specific conductivity b) at streams sampled in the eastern NPR-A study area, 2017.

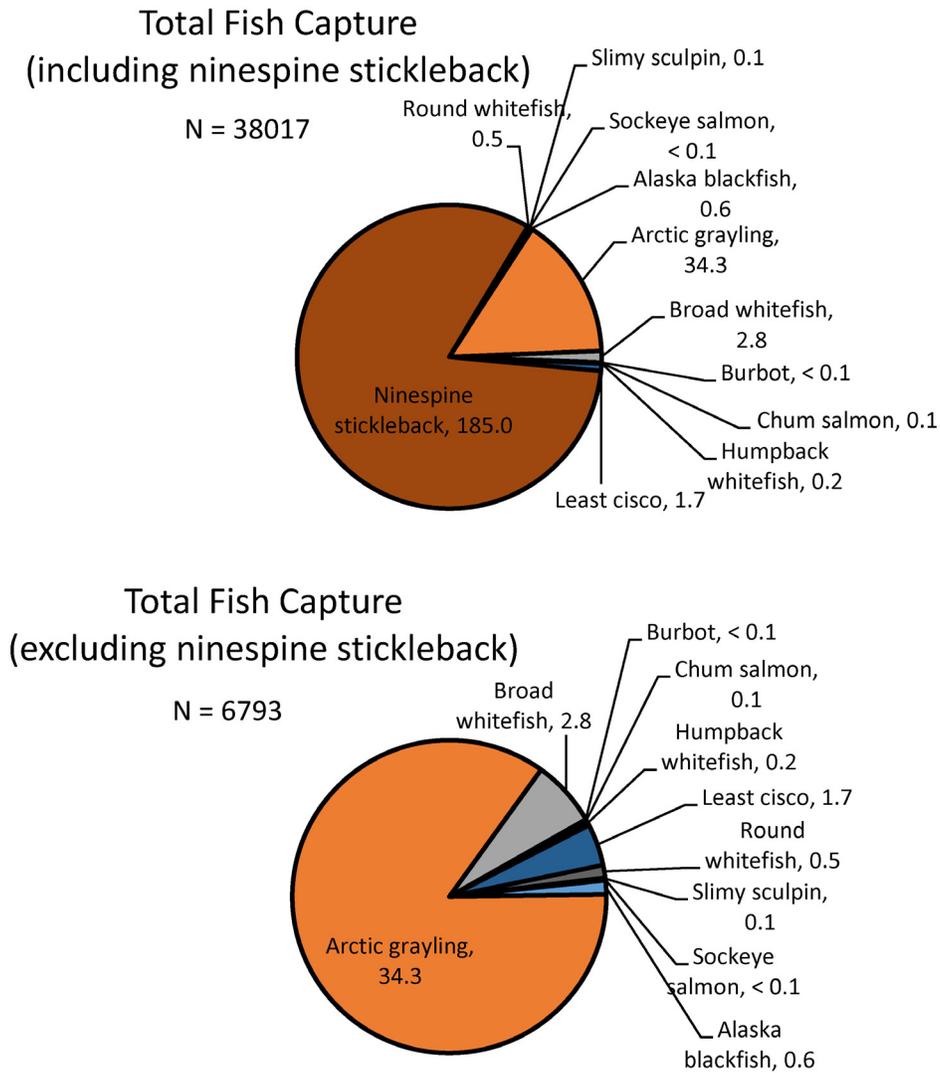


Figure 3. Fish catch rates (per 24 hour period) across study sites during 2017.

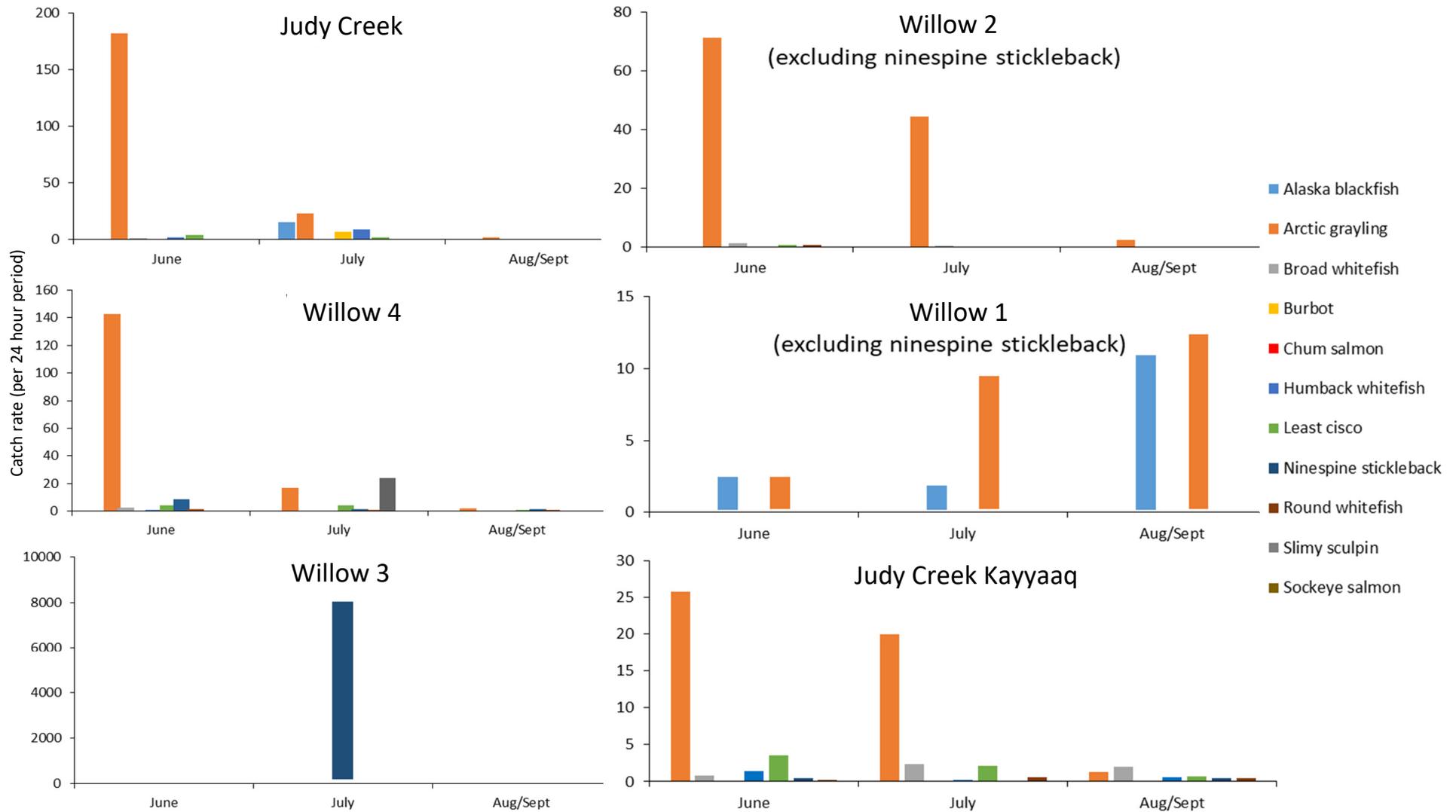


Figure 4. Seasonal fish catch rates at study sites during 2017.

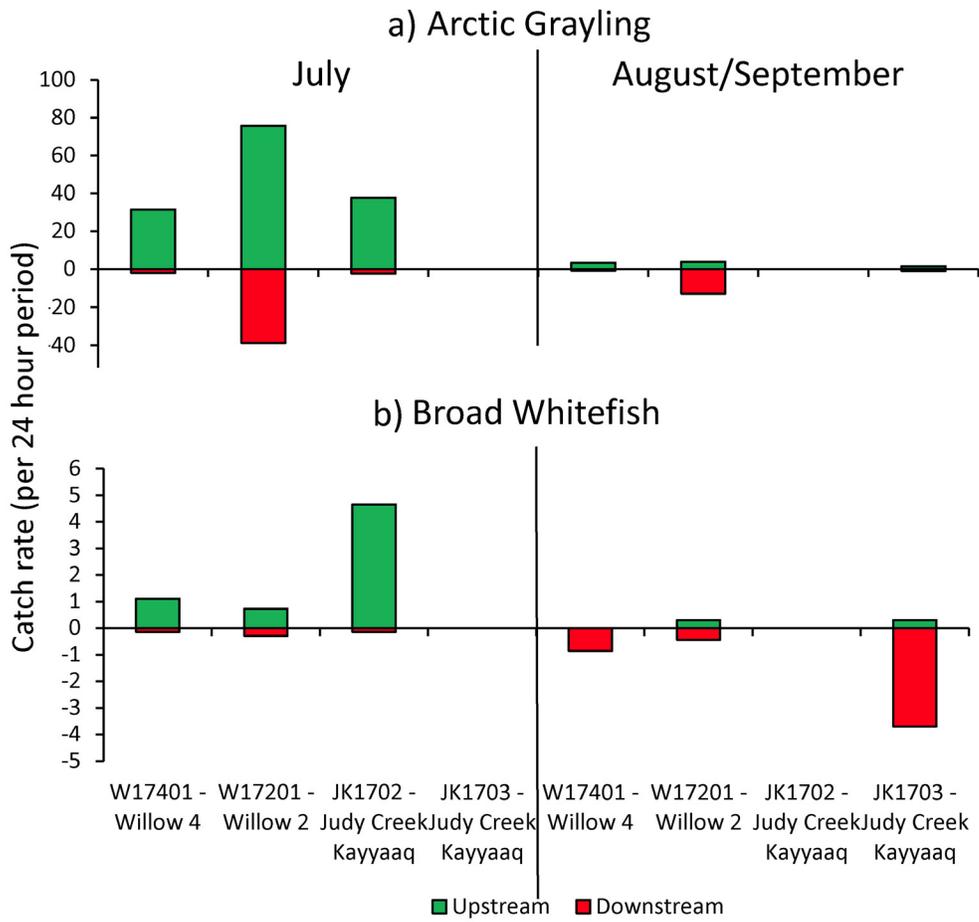


Figure 5. Seasonal Arctic grayling a) and broad whitefish b) movements during 2017.

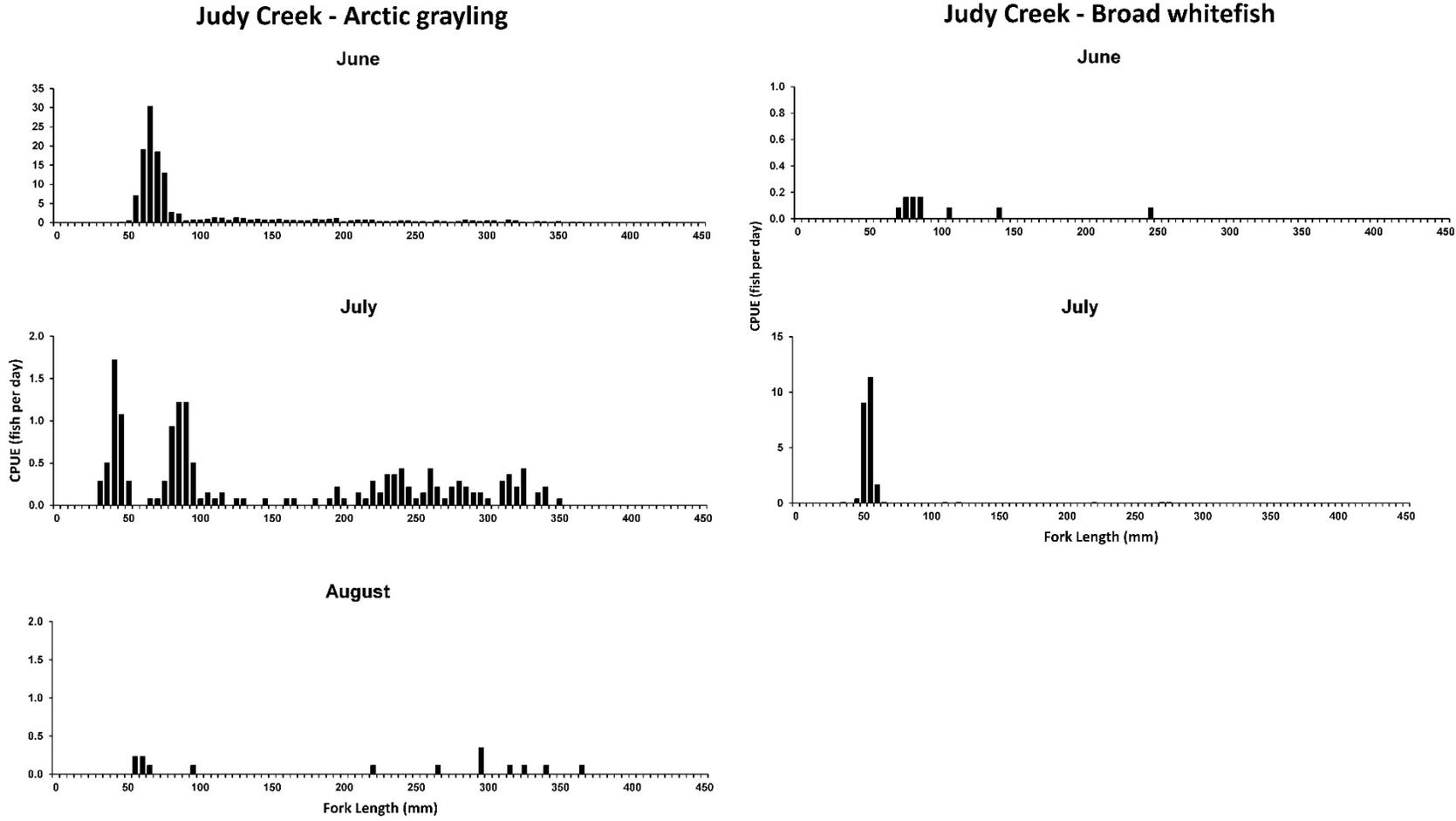


Figure 6. Length frequencies of Arctic grayling and broad whitefish captured from each waterbody during June, July, and August 2017.

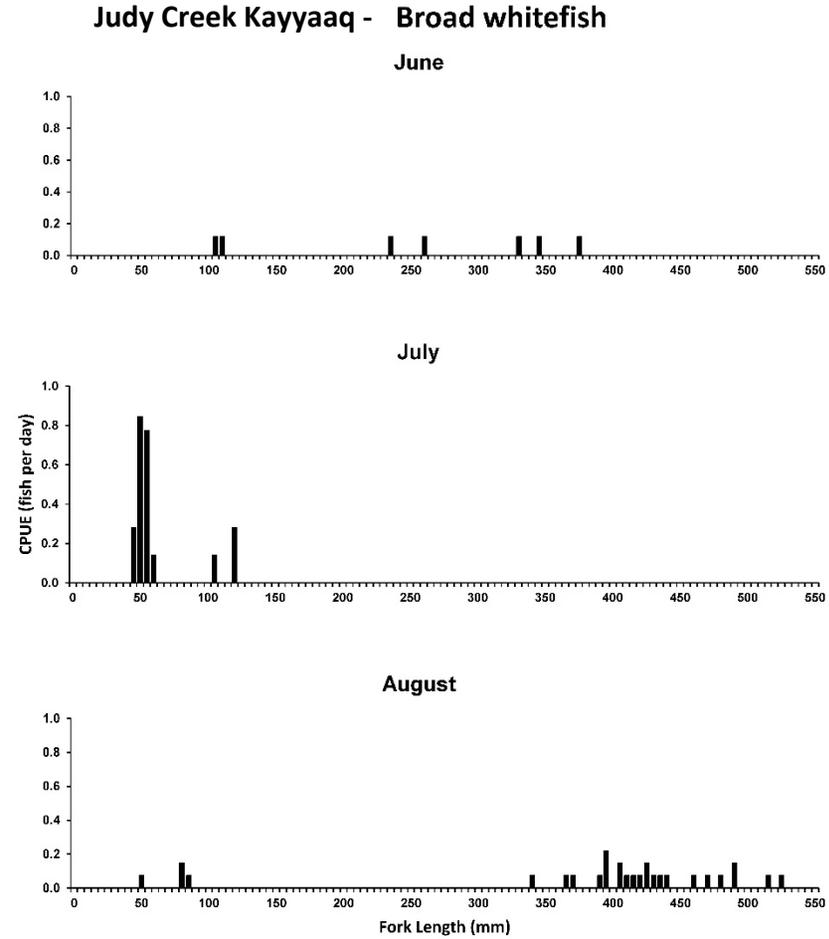
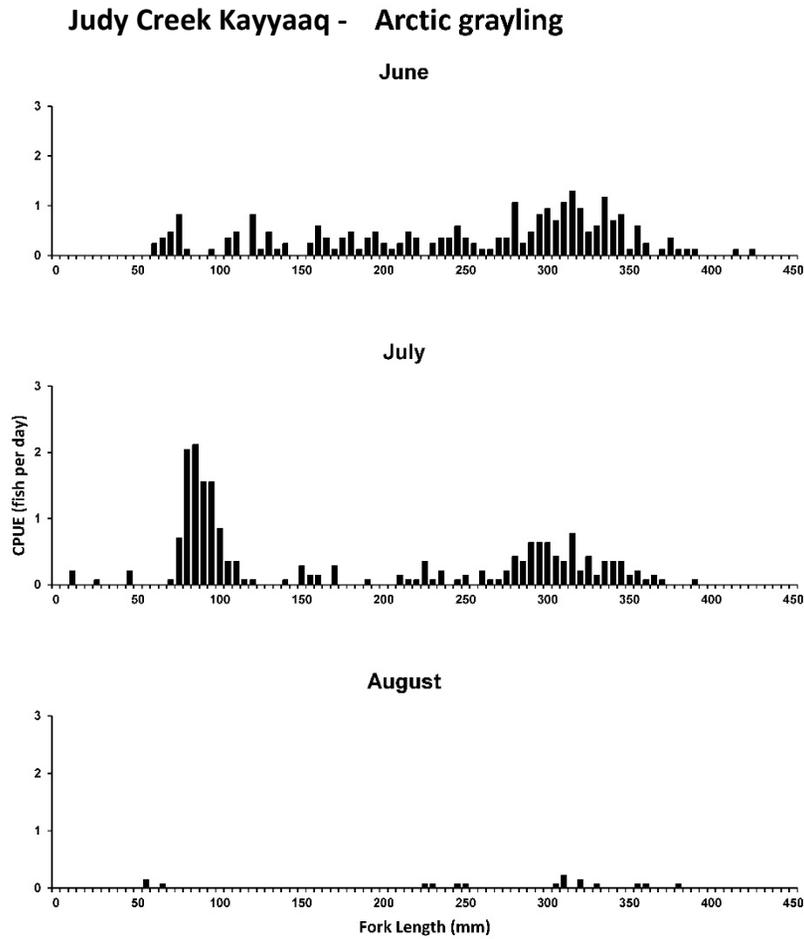
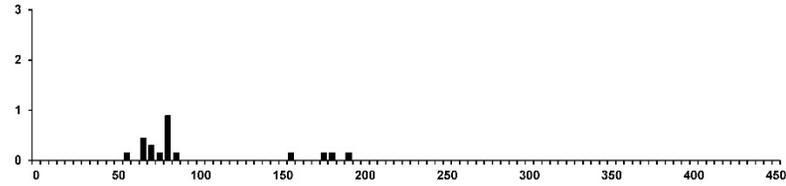


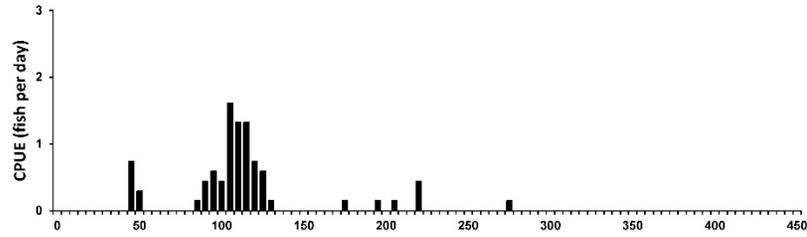
Figure 6. Continued

Willow 1 - Arctic grayling

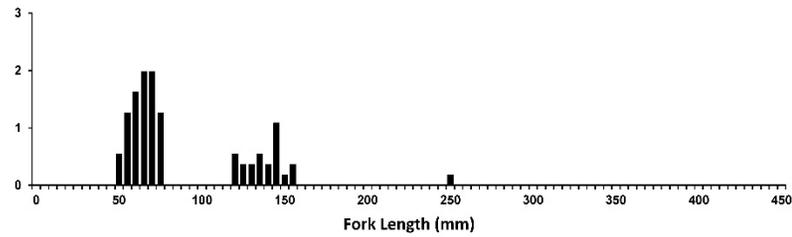
June



July



August



Willow 1 - Broad whitefish

No broad whitefish captured

Figure 6. Continued

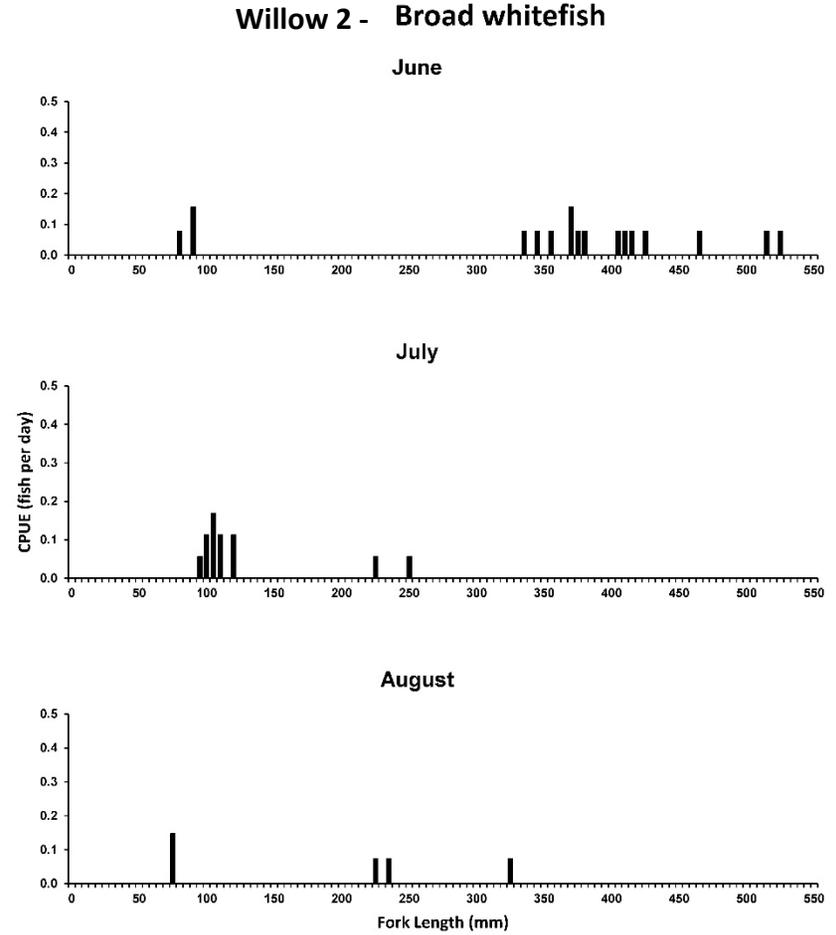
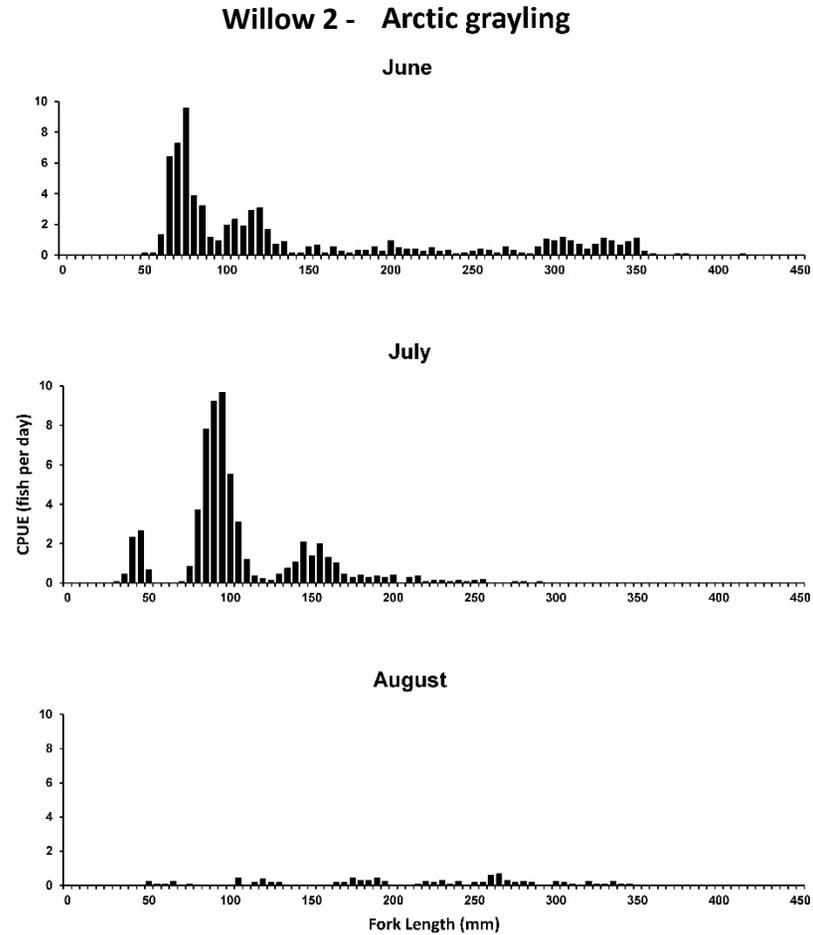


Figure 6. Continued

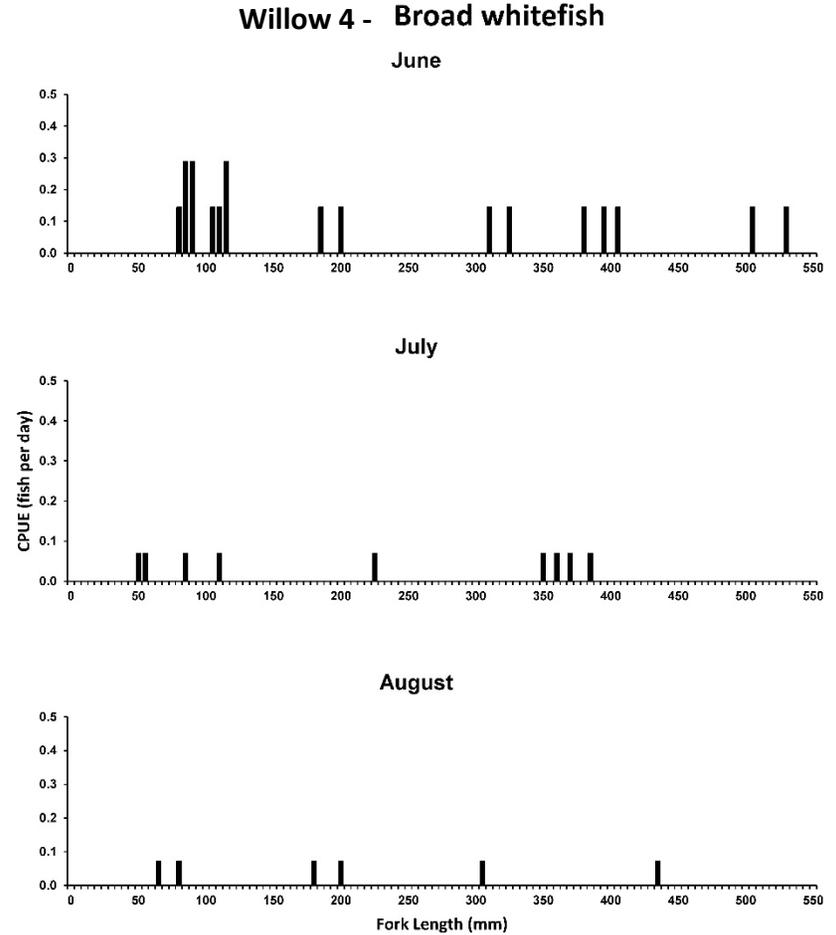
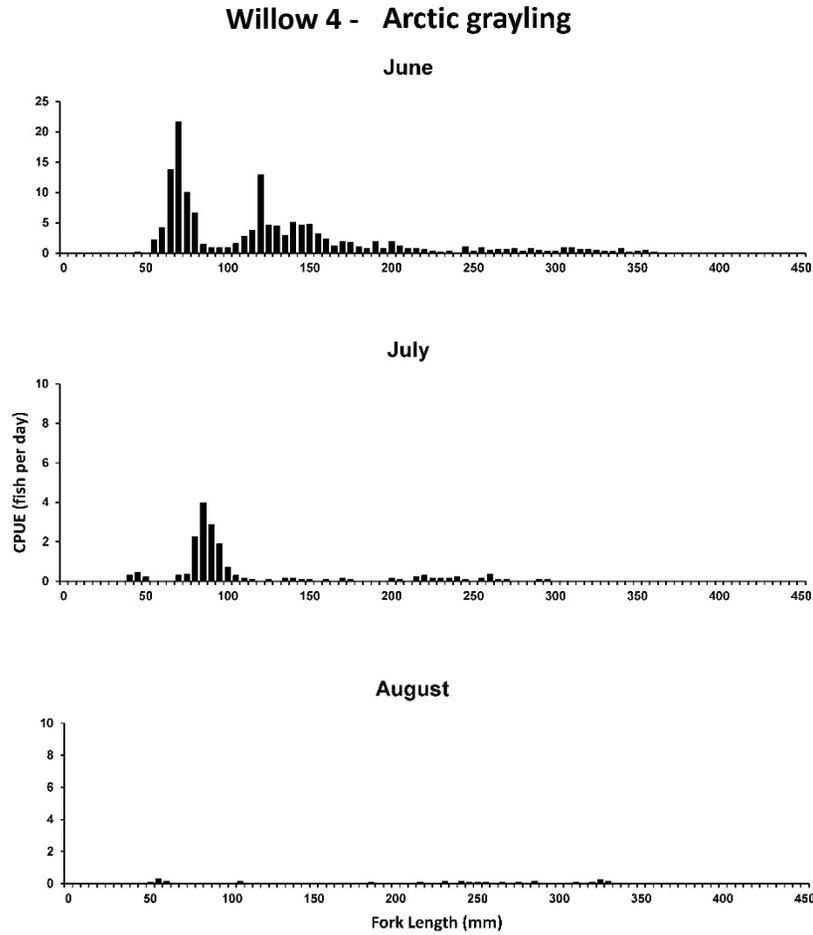


Figure 6. Continued

APPENDICES

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Appendix A. Water chemistry from fyke net stations in eastern NPR-A during 2017.

| Station | Date | Water Temp (°C) | Specific Conductance (microS/cm) | Turbidity (NTU) | pH |
|---------------------------|-----------|-----------------|----------------------------------|-----------------|------|
| Judy Creek Sites | | | | | |
| J1701 | 6/17/2017 | 9.6 | 112.2 | 9.7 | 7.97 |
| | 6/18/2017 | 9.4 | 113.1 | 8.6 | 7.46 |
| | 6/19/2017 | 11.0 | 115.3 | 8.9 | 7.73 |
| | 6/20/2017 | 11.4 | 117.7 | 8.8 | 8.00 |
| | 6/21/2017 | 13.8 | 121.2 | 8.6 | 7.87 |
| | 6/22/2017 | 13.6 | 121.8 | 2.7 | 7.81 |
| | 6/23/2017 | 14.3 | 123.8 | 8.7 | 7.97 |
| | 6/24/2017 | 13.7 | 125.9 | 8.6 | 7.92 |
| | 7/21/2017 | 11.8 | 178.1 | 4.7 | -- |
| | 7/22/2017 | 11.5 | 174.5 | 4.0 | 8.27 |
| | 7/23/2017 | 11.1 | 186.8 | 3.0 | 8.23 |
| | 7/24/2017 | 12.3 | 188.9 | 34.1 | 8.12 |
| | 7/25/2017 | 10.9 | 186.7 | 7.8 | 8.14 |
| | 7/26/2017 | 10.9 | 187.9 | 5.4 | 8.20 |
| | 7/27/2017 | 11.6 | 181.0 | 4.9 | 8.16 |
| | 7/28/2017 | 15.8 | 179.8 | 4.4 | 8.09 |
| | 8/27/2017 | 5.5 | 157.0 | 6.9 | 8.01 |
| | 8/28/2017 | 4.7 | 157.9 | 6.6 | 8.05 |
| | 8/29/2017 | 4.3 | 156.8 | 6.5 | 8.04 |
| | 8/30/2017 | 4.8 | 153.2 | 12.5 | 8.02 |
| J1704 | 6/17/2017 | 10.5 | 106.5 | 10.5 | 7.96 |
| | 6/18/2017 | 11.3 | 108.2 | 9.4 | 7.76 |
| | 6/19/2017 | 10.9 | 109.6 | 8.5 | 7.26 |
| | 6/20/2017 | 12.6 | 113.0 | 9.4 | 8.02 |
| | 6/21/2017 | 12.5 | 113.8 | 7.6 | 7.85 |
| | 6/22/2017 | 14.1 | 116.4 | 9.8 | -- |
| | 6/23/2017 | 14.4 | 118.4 | 8.8 | 7.77 |
| | 6/24/2017 | 14.0 | 120.0 | 9.3 | 8.00 |
| J1703 | 7/21/2017 | 11.3 | 174.2 | 4.2 | 8.42 |
| | 7/22/2017 | 12.2 | 184.8 | 3.3 | 8.20 |
| | 7/23/2017 | 11.9 | 179.3 | 7.5 | 8.25 |
| | 7/24/2017 | 12.8 | 181.9 | 10.7 | 8.02 |
| | 7/25/2017 | 12.1 | 184.4 | 8.6 | 8.19 |
| | 7/26/2017 | 12.2 | 179.3 | 4.3 | 8.14 |
| | 7/27/2017 | 13.3 | 180.3 | 5.1 | 8.14 |
| | 7/28/2017 | 17.9 | 169.0 | 4.5 | 8.10 |
| J1702 | 8/27/2017 | 5.6 | 153.0 | 6.1 | 8.00 |
| | 8/28/2017 | 4.5 | 154.2 | 6.2 | 8.00 |
| | 8/29/2017 | 4.5 | 152.5 | 7.5 | 7.94 |
| | 8/30/2017 | 4.7 | 149.3 | 13.9 | 7.99 |
| | 8/31/2017 | 3.9 | 142.4 | 13.7 | 8.00 |
| | 9/1/2017 | 3.7 | 142.3 | 11.8 | 7.98 |
| | 9/2/2017 | 4.9 | 141.7 | 9.8 | 8.00 |
| Judy Creek Kayyaaq | | | | | |
| JK1701 | 6/17/2017 | 7.5 | 169.7 | 10.3 | 7.74 |
| | 6/18/2017 | 9.8 | 174.2 | 9.7 | 7.80 |

Appendix A. Continued

| Station | Date | Water Temp (°C) | Specific Conductance (microS/cm) | Turbidity (NTU) | pH |
|-----------------------|-------------|------------------------|---|------------------------|-----------|
| | 6/19/2017 | 10.3 | 171.9 | 10.4 | 7.89 |
| JK1702 | 6/17/2017 | 8.3 | 170.2 | 5.8 | 7.76 |
| | 6/19/2017 | 10.8 | 168.5 | 5.6 | 7.90 |
| | 6/20/2017 | 10.5 | 167.2 | 5.5 | 7.51 |
| | 6/21/2017 | 11.4 | 164.8 | 9.4 | 7.59 |
| | 6/22/2017 | 12.9 | 161.8 | 4.9 | 6.92 |
| | 6/23/2017 | 13.4 | 155.6 | 6.5 | 7.66 |
| | 6/24/2017 | 13.7 | 152.4 | 6.3 | 7.68 |
| | 7/21/2017 | 12.3 | 149.8 | 2.3 | 7.98 |
| | 7/22/2017 | 12.7 | 154.5 | 2.3 | 8.14 |
| | 7/23/2017 | 11.9 | 153.6 | 3.1 | 7.93 |
| | 7/24/2017 | 12.3 | 146.0 | 2.7 | 7.59 |
| | 7/25/2017 | 11.2 | 144.2 | 2.2 | 7.93 |
| | 7/26/2017 | 11.5 | 145.5 | 2.2 | 8.01 |
| | 7/27/2017 | 12.0 | 142.6 | 1.9 | 8.00 |
| | 7/28/2017 | 14.9 | 147.1 | 2.4 | 7.98 |
| JK1703 | 8/26/2017 | 6.4 | 138.5 | 1.6 | 7.82 |
| | 8/27/2017 | 5.4 | 142.7 | 1.8 | 7.70 |
| | 8/28/2017 | 4.8 | 140.3 | 1.9 | 7.56 |
| | 8/29/2017 | 4.4 | 142.3 | 1.6 | 7.61 |
| | 8/30/2017 | 4.5 | 143.2 | 2.0 | 7.62 |
| | 8/31/2017 | 3.8 | 143.3 | 2.4 | 7.59 |
| | 9/1/2017 | 3.5 | 160.5 | 2.3 | 7.56 |
| | 9/2/2017 | 4.5 | 144.1 | 2.6 | 7.65 |
| Willow 1 Sites | | | | | |
| W17101 | 6/17/2017 | 8.9 | 117.5 | 2.2 | 7.60 |
| | 6/18/2017 | 8.0 | 116.2 | 2.0 | 6.83 |
| | 6/19/2017 | 10.5 | 116.0 | 3.1 | 7.75 |
| | 6/20/2017 | 10.7 | 117.6 | 1.0 | 7.58 |
| | 6/21/2017 | 12.5 | 115.6 | 0.8 | 7.70 |
| | 6/22/2017 | 11.9 | 117.2 | 2.8 | 7.57 |
| | 6/23/2017 | 13.5 | 115.7 | 0.9 | 7.41 |
| | 6/24/2017 | 12.1 | 114.4 | 0.9 | 7.72 |
| | 7/21/2017 | 11.5 | 157.2 | 0.9 | 8.33 |
| | 7/22/2017 | 11.0 | 157.9 | 1.0 | 8.07 |
| | 7/23/2017 | 10.5 | 156.4 | 1.2 | 7.91 |
| | 7/24/2017 | 11.7 | 149.1 | -- | -- |
| | 7/25/2017 | 10.6 | 127.3 | 1.2 | 7.35 |
| | 7/26/2017 | 10.8 | 120.6 | 0.9 | 7.63 |
| | 7/27/2017 | 10.5 | 132.1 | 1.0 | 7.85 |
| | 7/28/2017 | 14.3 | 131.3 | 1.0 | 7.82 |
| | 8/28/2017 | 5.1 | 147.9 | 0.7 | 7.77 |
| | 8/29/2017 | 5.2 | 147.0 | 0.8 | 7.69 |
| | 8/30/2017 | 4.7 | 146.3 | 0.9 | 7.85 |
| | 8/31/2017 | 4.0 | 145.6 | 1.8 | 7.67 |
| | 9/1/2017 | 3.4 | 146.7 | 1.1 | 7.84 |
| | 9/2/2017 | 4.7 | 145.4 | 0.9 | 7.80 |

Appendix A. Continued

| Station | Date | Water Temp (°C) | Specific Conductance (microS/cm) | Turbidity (NTU) | pH |
|-----------------------|-----------|-----------------|----------------------------------|-----------------|------|
| Willow 2 Sites | | | | | |
| W17201 | 6/17/2017 | 8.8 | 129.6 | -- | -- |
| | 6/18/2017 | 9.5 | 150.4 | 0.9 | 7.51 |
| | 6/19/2017 | 10.7 | 154.4 | 1.2 | 7.95 |
| | 6/20/2017 | 10.4 | 157.1 | 1.2 | 7.59 |
| | 6/21/2017 | 11.1 | 166.4 | 1.1 | 7.80 |
| | 6/22/2017 | 11.3 | 166.1 | 1.2 | 7.28 |
| | 6/23/2017 | 13.0 | 171.3 | 2.3 | 7.64 |
| | 6/24/2017 | 12.6 | 177.7 | 1.7 | 7.74 |
| W17203 | 6/20/2017 | 12.6 | 136.7 | 0.5 | 7.49 |
| | 6/21/2017 | 11.7 | 138.3 | 0.4 | 7.64 |
| | 6/22/2017 | 13.9 | 143.8 | 1.1 | 7.27 |
| | 6/23/2017 | 14.9 | 148.2 | 0.6 | 7.51 |
| | 6/24/2017 | 13.2 | 152.5 | 0.5 | 7.55 |
| | 7/21/2017 | 13.5 | 245.4 | 1.5 | 8.13 |
| | 7/22/2017 | 12.6 | 264.2 | 2.0 | 7.93 |
| | 7/23/2017 | 12.1 | 177.1 | 1.1 | 8.02 |
| | 7/24/2017 | 12.1 | 189.8 | 1.6 | 7.83 |
| | 7/25/2017 | 11.1 | 173.4 | 1.9 | 7.64 |
| | 7/26/2017 | 11.0 | 174.6 | 1.3 | 7.71 |
| | 7/27/2017 | 11.2 | 186.3 | 1.4 | 7.73 |
| | 7/28/2017 | 13.9 | 191.1 | 1.2 | 7.67 |
| | 8/26/2017 | 5.5 | 143.9 | 0.8 | 7.64 |
| | 8/27/2017 | 4.8 | 228.1 | 0.6 | 7.48 |
| | 8/28/2017 | 4.8 | 141.0 | 0.6 | 7.64 |
| | 8/29/2017 | 3.9 | 138.4 | 0.8 | 7.78 |
| 8/30/2017 | 4.7 | 137.2 | 0.6 | 7.57 | |
| 8/31/2017 | 3.2 | 135.5 | 0.9 | 7.62 | |
| 9/1/2017 | 3.4 | 134.7 | 0.8 | 7.54 | |
| 9/2/2017 | 4.9 | 134.7 | 0.8 | 7.60 | |
| W17202 | 6/18/2017 | 9.4 | 155.1 | 0.7 | 7.72 |
| | 6/19/2017 | 12.1 | 162.4 | 2.9 | 7.83 |
| | 7/24/2017 | 12.0 | 293.5 | 2.5 | 7.84 |
| | 7/26/2017 | 10.9 | 237.9 | 1.3 | 7.77 |
| | 7/27/2017 | 11.3 | 223.9 | 1.5 | 7.77 |
| | 7/28/2017 | 14.2 | 223.9 | 1.4 | 7.68 |
| Willow 3 Sites | | | | | |
| W17301 | 7/21/2017 | 13.9 | 188.8 | 1.3 | 8.19 |
| | 7/22/2017 | 12.9 | 189.9 | 3.0 | 8.07 |
| | 7/23/2017 | 11.0 | 191.9 | 4.3 | 8.03 |
| | 7/24/2017 | 12.4 | 187.7 | 3.5 | 8.15 |
| Willow 4 Sites | | | | | |
| W17401 | 6/17/2017 | 9.3 | 122.1 | 1.1 | 7.70 |
| | 6/18/2017 | 10.1 | 123.0 | 1.5 | 7.63 |
| | 6/19/2017 | 12.0 | 123.9 | 1.4 | 7.42 |
| | 6/20/2017 | 11.6 | 124.7 | 1.7 | 7.03 |
| | 6/21/2017 | 13.6 | 126.6 | 2.6 | 7.59 |
| | 6/22/2017 | 14.4 | 128.4 | 0.5 | 7.50 |

Appendix A. Continued

| Station | Date | Water Temp (°C) | Specific Conductance (microS/cm) | Turbidity (NTU) | pH |
|---------|-----------|-----------------|----------------------------------|-----------------|------|
| | 6/23/2017 | 14.9 | 131.0 | 1.6 | 7.60 |
| | 6/24/2017 | 15.2 | 131.9 | 1.7 | 7.62 |
| | 7/21/2017 | 13.4 | 160.1 | 2.4 | 8.00 |
| | 7/22/2017 | 13.5 | 157.0 | 1.8 | 8.25 |
| | 7/23/2017 | 12.6 | 160.6 | 1.8 | 8.00 |
| | 7/24/2017 | 12.5 | 152.8 | 4.0 | 7.90 |
| | 7/25/2017 | 11.9 | 138.8 | 1.9 | 7.86 |
| | 7/26/2017 | 12.4 | 146.2 | 2.3 | 8.00 |
| | 7/27/2017 | 13.1 | 149.5 | 3.6 | 8.00 |
| | 7/28/2017 | 16.8 | 152.4 | 3.1 | 8.02 |
| | 8/26/2017 | 6.6 | 146.5 | 1.2 | 7.76 |
| | 8/27/2017 | 5.7 | 146.2 | 1.2 | 7.55 |
| | 8/28/2017 | 5.1 | 146.2 | 1.6 | 7.56 |
| | 8/29/2017 | 4.7 | 145.4 | 1.6 | 7.61 |
| | 8/30/2017 | 4.9 | 145.8 | 2.3 | 7.59 |
| | 8/31/2017 | 4.1 | 145.6 | 1.6 | 7.61 |
| | 9/1/2017 | 3.7 | 145.8 | 2.0 | 7.59 |
| | 9/2/2017 | 4.8 | 144.6 | 1.5 | 7.61 |

Appendix B. Numbers of captured fish by direction and season at fyke net locations in eastern NPR-A during 2017.

Note, ‘US’ = captured moving upstream, ‘DS’ = captured moving downstream, and ‘--’ = captured moving both upstream and downstream.

Judy Creek Sites

| Station J1701 - Judy Creek | | | | | |
|-----------------------------------|--------------|--------------|------------------|---------------|--------------|
| Method: Fyke net | June | July | Aug/Sept. | Total | % of |
| Species | -- | -- | -- | catch | catch |
| Alaska blackfish | 1 | | | 1 | ≤0.01 |
| Arctic grayling | 1218 | 96 | 3 | 1317 | 0.77 |
| Broad whitefish | 4 | 233 | | 237 | 0.14 |
| Burbot | | | 1 | 1 | ≤0.01 |
| Least cisco | 8 | 63 | 1 | 72 | 0.04 |
| Ninespine stickleback | 26 | 17 | | 43 | 0.03 |
| Round whitefish | | 28 | | 28 | 0.02 |
| Slimy sculpin | 6 | 1 | | 7 | ≤0.01 |
| Total Catch | 1263 | 438 | 5 | 1706 | |
| Number of Species | 6 | 6 | 3 | 8 | |
| Effort (hours) | 162.2 | 166.8 | 67.67 | 396.67 | |

| Station J1703 - Judy Creek | | | | | |
|-----------------------------------|-------------|--------------|------------------|--------------|--------------|
| Method: Fyke net | June | July | Aug/Sept. | Total | % of |
| Species | | -- | | catch | catch |
| Broad whitefish | | 86 | | 86 | 0.25 |
| Arctic grayling | | 115 | | 115 | 0.33 |
| Least cisco | | 38 | | 38 | 0.11 |
| Ninespine stickleback | | 104 | | 104 | 0.30 |
| Round whitefish | | 1 | | 1 | ≤0.01 |
| Total Catch | | 344 | | 344 | |
| Number of Species | | 5 | | 5 | |
| Effort (hours) | | 168.3 | | 168.3 | |

| Station J1704 - Judy Creek | | | | | |
|-----------------------------------|-------------|-------------|------------------|--------------|--------------|
| Method: Fyke net | June | July | Aug/Sept. | Total | % of |
| Species | -- | | | catch | catch |
| Arctic grayling | 266 | | | 266 | 0.90 |
| Broad whitefish | 6 | | | 6 | 0.02 |
| Least cisco | 6 | | | 6 | 0.02 |
| Ninespine stickleback | 10 | | | 10 | 0.03 |
| Round whitefish | 1 | | | 1 | ≤0.01 |
| Slimy sculpin | 6 | | | 6 | 0.02 |
| Total Catch | 295 | | | 295 | |
| Number of Species | 6 | | | 6 | |
| Effort (hours) | 33.1 | | | 33.1 | |

| Station J1702 - Judy Creek | | | | | |
|-----------------------------------|-------------|-------------|------------------|--------------|--------------|
| Method: Fyke net | June | July | Aug/Sept. | Total | % of |
| Species | | | -- | catch | catch |
| Arctic grayling | | | 12 | 12 | 0.71 |
| Ninespine stickleback | | | 5 | 5 | 0.29 |
| Total Catch | | | 17 | 17 | |
| Number of Species | | | 2 | 2 | |
| Effort (hours) | | | 141.1 | 141.1 | |

Appendix B. Continued

Judy Creek Kayyaaq Sites

| Station JK1701 - Judy Creek Kayyaaq | | | | | |
|--|------|------|-----------|-------------|------------|
| Method: Fyke net | June | July | Aug/Sept. | Total catch | % of catch |
| Species | -- | | | | |
| Arctic grayling | 10 | | | 10 | 0.53 |
| Broad whitefish | 1 | | | 1 | 0.05 |
| Humback whitefish | 2 | | | 2 | 0.11 |
| Least cisco | 3 | | | 3 | 0.16 |
| Ninespine stickleback | 3 | | | 3 | 0.16 |
| | | | | | |
| Total Catch | 19 | | | 19 | |
| Number of Species | 5 | | | 5 | |
| Effort (hours) | 43.6 | | | 43.6 | |

| Station JK1702 - Judy Creek Kayyaaq | | | | | | |
|--|-------|-------|-------|-----------|-------------|------------|
| Method: Fyke net | June | July | | Aug/Sept. | Total catch | % of catch |
| Species | -- | (US) | (DS) | | | |
| Arctic grayling | 210 | 267 | 17 | | 494 | 0.80 |
| Broad whitefish | 6 | 33 | 1 | | 40 | 0.06 |
| Humback whitefish | 10 | | 4 | | 14 | 0.02 |
| Least cisco | 27 | 24 | 6 | | 57 | 0.09 |
| Ninespine stickleback | 1 | | 1 | | 2 | ≤ 0.01 |
| Round whitefish | 2 | 9 | | | 11 | 0.02 |
| | | | | | | |
| Total Catch | 256 | 333 | 29 | | 618 | |
| Number of Species | 6 | 4 | 5 | | 6 | |
| Effort (hours) | 161.3 | 170.3 | 170.5 | | 502.1 | |

| Station JK1703 - Judy Creek Kayyaaq | | | | | | |
|--|------|------|-----------|-------|-------------|------------|
| Method: Fyke net | June | July | Aug/Sept. | | Total catch | % of catch |
| Species | | | (US) | (DS) | | |
| Arctic grayling | | | 10 | 7 | 17 | 0.22 |
| Broad whitefish | | | 2 | 26 | 28 | 0.36 |
| Chum salmon | | | 1 | 1 | 2 | 0.03 |
| Humback whitefish | | | | 8 | 8 | 0.10 |
| Least cisco | | | | 9 | 9 | 0.12 |
| Ninespine stickleback | | | 4 | 2 | 6 | 0.08 |
| Round whitefish | | | 1 | 6 | 7 | 0.09 |
| | | | | | | |
| Total Catch | | | 18 | 59 | 77 | |
| Number of Species | | | 5 | 7 | 7 | |
| Effort (hours) | | | 159.3 | 168.5 | 327.8 | |

Willow 1 Sites

| Station W17101 - Willow 1 | | | | | |
|----------------------------------|------|-------|-----------|-------------|------------|
| Method: Fyke net | June | July | Aug/Sept. | Total catch | % of catch |
| Species | -- | -- | -- | | |
| Alaska blackfish | 18 | 14 | 62 | 94 | 0.04 |
| Arctic grayling | 18 | 66 | 70 | 154 | 0.07 |
| Ninespine stickleback | 289 | 1034 | 702 | 2025 | 0.89 |
| | | | | | |
| Total Catch | 325 | 1114 | 834 | 2273 | |
| Number of Species | 3 | 3 | 3 | 3 | |
| Effort (hours) | 162 | 163.5 | 133.6 | 459.1 | |

Appendix B. Continued

Willow 2 Sites

| Station W17201 - Willow 2 | | | | | |
|----------------------------------|--------------|-------------|------------------|--------------|--------------|
| Method: Fyke net | June | July | Aug/Sept. | Total | % of |
| Species | -- | | | catch | catch |
| Arctic grayling | 348 | | | 348 | 0.88 |
| Broad whitefish | 17 | | | 17 | 0.04 |
| Humback whitefish | 3 | | | 3 | ≤ 0.01 |
| Least cisco | 6 | | | 6 | 0.02 |
| Ninespine stickleback | 12 | | | 12 | 0.03 |
| Round whitefish | 8 | | | 8 | 0.02 |
| Total Catch | 394 | | | 394 | |
| Number of Species | 6 | | | 6 | |
| Effort (hours) | 143.6 | | | 143.6 | |

| Station W17202 - Willow 2 | | | | | |
|----------------------------------|-------------|-------------|------------------|--------------|--------------|
| Method: Fyke net | June | July | Aug/Sept. | Total | % of |
| Species | -- | -- | | catch | catch |
| Alaska blackfish | | 2 | | 2 | 0.00 |
| Arctic grayling | 40 | 308 | | 348 | 0.78 |
| Broad whitefish | | 5 | | 5 | 0.01 |
| Ninespine stickleback | | 87 | | 87 | 0.20 |
| Round whitefish | 3 | | | 3 | 0.01 |
| Total Catch | 43 | 402 | | 445 | |
| Number of Species | 2 | 4 | | 5 | |
| Effort (hours) | 28.1 | 95 | | 123.1 | |

Willow 3 Sites

| Station W17301 - Willow 3 | | | | | |
|----------------------------------|-------------|--------------|------------------|--------------|--------------|
| Method: Fyke net | June | July | Aug/Sept. | Total | % of |
| Species | | -- | | catch | catch |
| Ninespine stickleback | | 24104 | | 24104 | 1 |
| Total Catch | | 24104 | | 24104 | |
| Number of Species | | 1 | | 1 | |
| Effort (hours) | | 70.5 | | 70.5 | |

| Station W17203 - Willow 2 | | | | | | | |
|----------------------------------|--------------|--------------|--------------|------------------|--------------|--------------|--------------|
| Method: Fyke net | June | July | | Aug/Sept. | | Total | % of |
| Species | -- | (US) | (DS) | (US) | (DS) | catch | catch |
| Arctic grayling | 535 | 525 | 269 | 27 | 87 | 1443 | 0.23 |
| Broad whitefish | | 5 | 2 | 2 | 3 | 12 | ≤ 0.01 |
| Least cisco | 2 | | | | | 2 | ≤ 0.01 |
| Ninespine stickleback | 8 | 32 | 548 | 184 | 3956 | 4728 | 0.76 |
| Total Catch | 545 | 562 | 819 | 213 | 4046 | 6185 | |
| Number of Species | 3 | 3 | 3 | 3 | 3 | 4 | |
| Effort (hours) | 138.4 | 166.3 | 165.9 | 165.2 | 161.8 | 797.6 | |

Appendix B. Continued**Willow 4 Sites**

| Station W17401 - Willow 4 | | | | | | | |
|----------------------------------|--------------|-------------|--------------|------------------|--------------|--------------|-------------------|
| Method: Fyke net | June | July | | Aug/Sept. | | Total | % of catch |
| Species | -- | (US) | (DS) | (US) | (DS) | catch | |
| Alaska blackfish | | 1 | | | | 1 | ≤ 0.01 |
| Arctic grayling | 990 | 227 | 15 | 23 | 6 | 1261 | 0.81 |
| Broad whitefish | 18 | 8 | 1 | | 6 | 33 | 0.02 |
| Chum salmon | | | | 9 | | 9 | ≤ 0.01 |
| Humback whitefish | 6 | | | | | 6 | ≤ 0.01 |
| Least cisco | 28 | 10 | 49 | | 13 | 100 | 0.06 |
| Ninespine stickleback | 59 | 21 | | 8 | 10 | 98 | 0.06 |
| Round whitefish | 10 | 12 | 4 | 3 | 9 | 38 | 0.02 |
| Slimy sculpin | | | | | 1 | 1 | ≤ 0.01 |
| Sockeye salmon | | | | 3 | 1 | 4 | ≤ 0.01 |
| Total Catch | 1111 | 279 | 69 | 46 | 46 | 1551 | |
| Number of Species | 6 | 6 | 4 | 5 | 7 | 10 | |
| Effort (hours) | 166.6 | 173 | 172.6 | 165.2 | 167.7 | 845.1 | |

Appendix C. Fish catch rates (per 24 hour period) by direction and season at fyke net locations in eastern NPR-A during 2017.

Note, ‘US’ = captured moving upstream, ‘DS’ = captured moving downstream, and ‘--’ = captured moving both upstream and downstream.

Judy Creek Sites

| Station J1701 - Judy Creek | | | |
|-----------------------------------|---------------|--------------|------------------|
| Method: Fyke net | June | July | Aug/Sept. |
| Species | -- | -- | -- |
| Alaska blackfish | 0.15 | 0.00 | 0.00 |
| Arctic grayling | 180.22 | 13.81 | 1.06 |
| Broad whitefish | 0.59 | 33.53 | 0.00 |
| Burbot | 0.00 | 0.00 | 0.35 |
| Least cisco | 1.18 | 9.06 | 0.35 |
| Ninespine stickleback | 3.85 | 2.45 | 0.00 |
| Round whitefish | 0.00 | 4.03 | 0.00 |
| Slimy sculpin | 0.89 | 0.14 | 0.00 |
| Total CPUE | 186.88 | 63.02 | 1.77 |
| Number of Species | 6 | 6 | 3 |
| Effort (hours) | 162.2 | 166.8 | 67.67 |

| Station J1703 - Judy Creek | | | |
|-----------------------------------|-------------|--------------|------------------|
| Method: Fyke net | June | July | Aug/Sept. |
| Species | | -- | |
| Broad whitefish | | 12.26 | |
| Arctic grayling | | 16.40 | |
| Least cisco | | 5.42 | |
| Ninespine stickleback | | 14.83 | |
| Round whitefish | | 0.14 | |
| Total CPUE | | 49.06 | |
| Number of Species | | 5 | |
| Effort (hours) | | 168.3 | |

| Station J1704 - Judy Creek | | | |
|-----------------------------------|--------------|-------------|------------------|
| Method: Fyke net | June | July | Aug/Sept. |
| Species | -- | | |
| Arctic grayling | 8.04 | | |
| Broad whitefish | 0.18 | | |
| Least cisco | 0.18 | | |
| Ninespine stickleback | 0.30 | | |
| Round whitefish | 0.03 | | |
| Slimy sculpin | 0.18 | | |
| Total CPUE | 8.91 | | |
| Number of Species | 6 | | |
| Effort (hours) | 33.10 | | |

| Station J1702 - Judy Creek | | | |
|-----------------------------------|-------------|-------------|------------------|
| Method: Fyke net | June | July | Aug/Sept. |
| Species | | | -- |
| Arctic grayling | | | 2.04 |
| Ninespine stickleback | | | 0.85 |
| Total CPUE | | | 2.89 |
| Number of Species | | | 2 |
| Effort (hours) | | | 141.1 |

Appendix C. Continued

Judy Creek Kayyaaq Sites

| Station JK1701 - Judy Creek Kayyaaq | | | | | |
|-------------------------------------|------|------|-----------|-------------|------------|
| Method: Fyke net | June | July | Aug/Sept. | Total catch | % of catch |
| Species | -- | | | | |
| Arctic grayling | 10 | | | 10 | 0.53 |
| Broad whitefish | 1 | | | 1 | 0.05 |
| Humback whitefish | 2 | | | 2 | 0.11 |
| Least cisco | 3 | | | 3 | 0.16 |
| Ninespine stickleback | 3 | | | 3 | 0.16 |
| Total Catch | 19 | | | 19 | |
| Number of Species | 5 | | | 5 | |
| Effort (hours) | 43.6 | | | 43.6 | |

| Station JK1702 - Judy Creek Kayyaaq | | | | | | |
|-------------------------------------|-------|-------|-------|-----------|-------------|------------|
| Method: Fyke net | June | July | | Aug/Sept. | Total catch | % of catch |
| Species | -- | (US) | (DS) | | | |
| Arctic grayling | 210 | 267 | 17 | | 494 | 0.80 |
| Broad whitefish | 6 | 33 | 1 | | 40 | 0.06 |
| Humback whitefish | 10 | | 4 | | 14 | 0.02 |
| Least cisco | 27 | 24 | 6 | | 57 | 0.09 |
| Ninespine stickleback | 1 | | 1 | | 2 | ≤ 0.01 |
| Round whitefish | 2 | 9 | | | 11 | 0.02 |
| Total Catch | 256 | 333 | 29 | | 618 | |
| Number of Species | 6 | 4 | 5 | | 6 | |
| Effort (hours) | 161.3 | 170.3 | 170.5 | | 502.1 | |

| Station JK1703 - Judy Creek Kayyaaq | | | | | | |
|-------------------------------------|------|------|-----------|-------|-------------|------------|
| Method: Fyke net | June | July | Aug/Sept. | | Total catch | % of catch |
| Species | | | (US) | (DS) | | |
| Arctic grayling | | | 10 | 7 | 17 | 0.22 |
| Broad whitefish | | | 2 | 26 | 28 | 0.36 |
| Chum salmon | | | 1 | 1 | 2 | 0.03 |
| Humback whitefish | | | | 8 | 8 | 0.10 |
| Least cisco | | | | 9 | 9 | 0.12 |
| Ninespine stickleback | | | 4 | 2 | 6 | 0.08 |
| Round whitefish | | | 1 | 6 | 7 | 0.09 |
| Total Catch | | | 18 | 59 | 77 | |
| Number of Species | | | 5 | 7 | 7 | |
| Effort (hours) | | | 159.3 | 168.5 | 327.8 | |

Willow 1 Sites

| Station W17101 - Willow 1 | | | |
|---------------------------|-------|--------|-----------|
| Method: Fyke net | June | July | Aug/Sept. |
| Species | -- | -- | -- |
| Alaska blackfish | 2.67 | 2.06 | 11.14 |
| Arctic grayling | 2.67 | 9.69 | 12.57 |
| Ninespine stickleback | 42.81 | 151.78 | 126.11 |
| Total CPUE | 48.15 | 163.52 | 149.82 |
| Number of Species | 3 | 3 | 3 |
| Effort (hours) | 162 | 163.5 | 133.6 |

Appendix C. Continued

Willow 2 Sites

| Station W17201 - Willow 2 | | | |
|----------------------------------|--------------|-------------|------------------|
| Method: Fyke net | June | July | Aug/Sept. |
| Species | -- | | |
| Arctic grayling | 58.16 | | |
| Broad whitefish | 2.84 | | |
| Humback whitefish | 0.50 | | |
| Least cisco | 1.00 | | |
| Ninespine stickleback | 2.01 | | |
| Round whitefish | 1.34 | | |
| Total CPUE | 65.85 | | |
| Number of Species | 6 | | |
| Effort (hours) | 143.6 | | |

| Station W17202 - Willow 2 | | | |
|----------------------------------|--------------|---------------|------------------|
| Method: Fyke net | June | July | Aug/Sept. |
| Species | -- | | |
| Alaska blackfish | 0.00 | 0.51 | |
| Arctic grayling | 34.16 | 77.81 | |
| Broad whitefish | 0.00 | 1.26 | |
| Ninespine stickleback | 0.00 | 21.98 | |
| Round whitefish | 2.56 | 0.00 | |
| Total CPUE | 36.73 | 101.56 | |
| Number of Species | 2 | 4 | |
| Effort (hours) | 28.1 | 95 | |

Willow 3 Sites

| Station W17301 - Willow 3 | | | |
|----------------------------------|-------------|----------------|------------------|
| Method: Fyke net | June | July | Aug/Sept. |
| Species | -- | | |
| Ninespine stickleback | | 8205.62 | |
| Total CPUE | | 8205.62 | |
| Number of Species | | 1 | |
| Effort (hours) | | 70.5 | |

| Station W17203 - Willow 2 | | | | | |
|----------------------------------|--------------|--------------|---------------|------------------|---------------|
| Method: Fyke net | June | July | | Aug/Sept. | |
| Species | -- | (US) | (DS) | (US) | (DS) |
| Arctic grayling | 92.77 | 75.77 | 38.92 | 3.92 | 12.90 |
| Broad whitefish | 0.00 | 0.72 | 0.29 | 0.29 | 0.44 |
| Least cisco | 0.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| Ninespine stickleback | 1.39 | 4.62 | 79.28 | 26.73 | 586.80 |
| Total CPUE | 94.51 | 81.11 | 118.48 | 30.94 | 600.15 |
| Number of Species | 3 | 3 | 3 | 3 | 3 |
| Effort (hours) | 138.4 | 166.3 | 165.9 | 165.2 | 161.8 |

Appendix C. Continued**Willow 4 Sites**

| Station W17401 - Willow 4 | | | | | |
|----------------------------------|-------------|-------------|-------|------------------|-------|
| Method: Fyke net | June | July | | Aug/Sept. | |
| Species | -- | (US) | (DS) | (US) | (DS) |
| Alaska blackfish | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 |
| Arctic grayling | 142.62 | 31.49 | 2.09 | 3.34 | 0.86 |
| Broad whitefish | 2.59 | 1.11 | 0.14 | 0.00 | 0.86 |
| Chum salmon | 0.00 | 0.00 | 0.00 | 1.31 | 0.00 |
| Humback whitefish | 0.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| Least cisco | 4.03 | 1.39 | 6.81 | 0.00 | 1.86 |
| Ninespine stickleback | 8.50 | 2.91 | 0.00 | 1.16 | 1.43 |
| Round whitefish | 1.44 | 1.66 | 0.56 | 0.44 | 1.29 |
| Slimy sculpin | 0.00 | 0.00 | 0.00 | 0.00 | 0.14 |
| Sockeye salmon | 0.00 | 0.00 | 0.00 | 0.44 | 0.14 |
| Total CPUE | 160.05 | 38.71 | 9.59 | 6.68 | 6.58 |
| Number of Species | 6 | 6 | 4 | 5 | 7 |
| Effort (hours) | 166.6 | 173 | 172.6 | 165.2 | 167.7 |

Appendix D. Recapture and release data for fish recaptured during 2017.

Note, bold italics = different release and recapture stations, '*' = mortality and no measurement taken, '-' = no data available, 'BDWF' = Broad whitefish, 'GRAY' = Arctic grayling, 'HBWF' = Humpback whitefish, 'LSCS' = Least cisco, 'RDWF' = Round whitefish.

| Tag Number | Species | Release Data | | | Recapture Data | | | Days at Large |
|------------|---------|---------------|------------------|------------|----------------|------------------|------------|---------------|
| | | Station | Date | Length | Station | Date | Length | |
| OR1608 | BDWF | W17201 | 6/22/2017 | 428 | W17201 | 6/23/2017 | 419 | 1 |
| OR2653 | BDWF | W17203 | 8/27/2017 | 227 | W17203 | 8/28/2017 | 328 | 1 |
| MJM090428 | GRAY | <i>U1302</i> | <i>6/19/2013</i> | <i>234</i> | <i>JK1702</i> | <i>7/24/2017</i> | <i>325</i> | <i>1497</i> |
| MJM090721 | GRAY | <i>C1301</i> | <i>8/26/2013</i> | <i>230</i> | <i>W17401</i> | <i>6/21/2017</i> | <i>325</i> | <i>1396</i> |
| OR0024 | GRAY | <i>J1701</i> | <i>6/18/2017</i> | <i>207</i> | <i>W17401</i> | <i>6/20/2017</i> | <i>209</i> | <i>2</i> |
| OR0027 | GRAY | JK1702 | 6/19/2017 | 193 | JK1702 | 6/23/2017 | 194 | 4 |
| OR0028 | GRAY | JK1702 | 6/19/2017 | 197 | JK1702 | 6/20/2017 | 195 | 1 |
| OR0041 | GRAY | W17401 | 6/18/2017 | 181 | W17401 | 6/19/2017 | 178 | 1 |
| OR0070 | GRAY | J1701 | 6/20/2017 | 194 | J1701 | 6/21/2017 | 192 | 1 |
| OR0073 | GRAY | <i>J1701</i> | <i>6/20/2017</i> | <i>195</i> | <i>W17401</i> | <i>6/23/2017</i> | <i>193</i> | <i>3</i> |
| OR0076 | GRAY | <i>J1701</i> | <i>6/21/2017</i> | <i>212</i> | <i>JK1702</i> | <i>6/24/2017</i> | <i>215</i> | <i>3</i> |
| OR0079 | GRAY | <i>J1701</i> | <i>6/21/2017</i> | <i>191</i> | <i>W17401</i> | <i>6/22/2017</i> | <i>192</i> | <i>1</i> |
| OR0089 | GRAY | <i>J1701</i> | <i>6/21/2017</i> | <i>204</i> | <i>W17401</i> | <i>6/22/2017</i> | <i>204</i> | <i>1</i> |
| OR0129 | GRAY | <i>W17203</i> | <i>6/24/2017</i> | <i>215</i> | <i>W17202</i> | <i>7/25/2017</i> | <i>230</i> | <i>31</i> |
| OR0132 | GRAY | W17101 | 6/24/2017 | 191 | W17101 | 7/22/2017 | 222 | 29 |
| OR0132 | GRAY | W17101 | 7/22/2017 | 222 | W17101 | 7/25/2017 | 220 | 6 |
| OR0132 | GRAY | W17101 | 7/25/2017 | 222 | W17101 | 7/28/2017 | 222 | 3 |
| OR0132 | GRAY | W17101 | 7/28/2017 | 220 | W17101 | 8/31/2017 | 251 | 34 |
| OR0152 | GRAY | <i>J1701</i> | <i>6/20/2017</i> | <i>217</i> | <i>W17201</i> | <i>6/22/2017</i> | <i>219</i> | <i>2</i> |
| OR0156 | GRAY | <i>J1701</i> | <i>6/20/2017</i> | <i>182</i> | <i>W17203</i> | <i>6/23/2017</i> | <i>186</i> | <i>3</i> |
| OR0160 | GRAY | <i>J1701</i> | <i>6/20/2017</i> | <i>196</i> | <i>W17401</i> | <i>6/22/2017</i> | <i>197</i> | <i>2</i> |
| OR0216 | GRAY | J1701 | 6/22/2017 | 240 | J1701 | 6/23/2017 | 240 | 1 |
| OR0219 | GRAY | J1701 | 6/22/2017 | 221 | J1701 | 6/23/2017 | 220 | 1 |
| OR0219 | GRAY | <i>J1701</i> | <i>6/23/2017</i> | <i>220</i> | <i>W17401</i> | <i>7/24/2017</i> | <i>230</i> | <i>31</i> |
| OR0221 | GRAY | <i>W17201</i> | <i>6/22/2017</i> | <i>204</i> | <i>W17203</i> | <i>6/23/2017</i> | <i>204</i> | <i>1</i> |
| OR0223 | GRAY | W17201 | 6/22/2017 | 192 | W17201 | 6/23/2017 | 192 | 1 |
| OR0226 | GRAY | W17201 | 6/20/2017 | 203 | W17201 | 6/21/2017 | 205 | 1 |
| OR0228 | GRAY | W17201 | 6/20/2017 | 201 | W17201 | 6/21/2017 | 202 | 1 |
| OR0228 | GRAY | <i>W17201</i> | <i>6/21/2017</i> | <i>202</i> | <i>J1701</i> | <i>7/22/2017</i> | <i>224</i> | <i>31</i> |
| OR0232 | GRAY | <i>W17201</i> | <i>6/20/2017</i> | <i>222</i> | <i>JK1702</i> | <i>7/22/2017</i> | <i>235</i> | <i>32</i> |
| OR0232 | GRAY | JK1702 | 7/22/2017 | 235 | JK1702 | 7/24/2017 | 235 | 2 |
| OR0234 | GRAY | <i>W17201</i> | <i>6/20/2017</i> | <i>194</i> | <i>W17203</i> | <i>6/23/2017</i> | <i>194</i> | <i>3</i> |
| OR0235 | GRAY | <i>W17201</i> | <i>6/19/2017</i> | <i>195</i> | <i>W17203</i> | <i>6/20/2017</i> | <i>194</i> | <i>1</i> |
| OR0238 | GRAY | <i>W17201</i> | <i>6/19/2017</i> | <i>247</i> | <i>JK1702</i> | <i>6/22/2017</i> | <i>248</i> | <i>3</i> |
| OR0240 | GRAY | W17201 | 6/19/2017 | 209 | W17201 | 6/20/2017 | 209 | 1 |
| OR0240 | GRAY | W17201 | 6/20/2017 | 209 | W17201 | 6/23/2017 | 210 | 3 |
| OR0240 | GRAY | W17201 | 6/23/2017 | 210 | W17201 | 6/24/2017 | 212 | 1 |
| OR0251 | GRAY | W17203 | 6/20/2017 | 213 | W17203 | 6/23/2017 | 217 | 3 |
| OR0251 | GRAY | W17203 | 6/23/2017 | 217 | W17203 | 6/24/2017 | 216 | 1 |
| OR0251 | GRAY | W17203 | 6/24/2017 | 216 | W17203 | 8/27/2017 | 240 | 64 |
| OR0251 | GRAY | W17203 | 8/27/2017 | 240 | W17203 | 8/28/2017 | 241 | 1 |
| OR0253 | GRAY | W17203 | 6/20/2017 | 206 | W17203 | 7/24/2017 | 234 | 34 |
| OR0253 | GRAY | W17203 | 7/24/2017 | 234 | W17203 | 8/31/2017 | 262 | 38 |
| OR0256 | GRAY | W17203 | 6/20/2017 | 233 | W17203 | 8/27/2017 | 267 | 68 |
| OR0258 | GRAY | W17203 | 6/21/2017 | 231 | W17203 | 6/23/2017 | 229 | 2 |
| OR0258 | GRAY | W17203 | 6/23/2017 | 229 | W17203 | 6/24/2017 | 228 | 1 |
| OR0259 | GRAY | <i>W17201</i> | <i>6/21/2017</i> | <i>202</i> | <i>W17203</i> | <i>6/24/2017</i> | <i>203</i> | <i>3</i> |

Appendix D. Continued

| Tag Number | Species | Release Data | | | Recapture Data | | | |
|------------|---------|---------------|------------------|------------|----------------|------------------|------------|---------------|
| | | Station | Date | Length | Station | Date | Length | Days at Large |
| OR0260 | GRAY | <i>W17201</i> | <i>6/21/2017</i> | <i>182</i> | <i>W17203</i> | <i>6/22/2017</i> | <i>181</i> | <i>1</i> |
| OR0262 | GRAY | <i>W17201</i> | <i>6/21/2017</i> | <i>199</i> | <i>W17203</i> | <i>6/24/2017</i> | <i>200</i> | <i>3</i> |
| OR0265 | GRAY | <i>W17201</i> | <i>6/24/2017</i> | <i>181</i> | <i>W17202</i> | <i>7/27/2017</i> | <i>203</i> | <i>33</i> |
| OR0280 | GRAY | W17203 | 7/24/2017 | 196 | W17203 | 8/27/2017 | 226 | 34 |
| OR0280 | GRAY | W17203 | 8/27/2017 | 226 | W17203 | 8/28/2017 | 226 | 1 |
| OR0297 | GRAY | - | - | - | J1701 | 7/23/2017 | 199 | - |
| OR0303 | GRAY | W17203 | 7/25/2017 | 239 | W17203 | 8/31/2017 | 268 | 37 |
| OR0304 | GRAY | W17203 | 7/25/2017 | 203 | W17203 | 7/27/2017 | 225 | 2 |
| OR0306 | GRAY | W17203 | 7/25/2017 | 210 | W17203 | 7/26/2017 | 216 | 1 |
| OR0307 | GRAY | W17203 | 7/25/2017 | 188 | W17203 | 7/26/2017 | 189 | 1 |
| OR0308 | GRAY | W17203 | 7/25/2017 | 189 | W17203 | 7/27/2017 | 190 | 2 |
| OR0309 | GRAY | W17203 | 7/25/2017 | 215 | W17203 | 7/27/2017 | 218 | 2 |
| OR0312 | GRAY | W17203 | 7/25/2017 | 211 | W17203 | 7/26/2017 | 212 | 1 |
| OR0312 | GRAY | W17203 | 7/26/2017 | 212 | W17203 | 8/31/2017 | 236 | 36 |
| OR0313 | GRAY | W17202 | 7/25/2017 | 197 | W17202 | 7/27/2017 | 218 | 2 |
| OR0315 | GRAY | W17202 | 7/25/2017 | 192 | W17202 | 7/26/2017 | 193 | 1 |
| OR0316 | GRAY | <i>W17202</i> | <i>7/25/2017</i> | <i>197</i> | <i>W17203</i> | <i>7/28/2017</i> | <i>201</i> | <i>3</i> |
| OR0316 | GRAY | W17203 | 7/28/2017 | 201 | W17203 | 9/2/2017 | 215 | 36 |
| OR0353 | GRAY | J1703 | 7/24/2017 | 230 | J1703 | 7/27/2017 | 230 | 3 |
| OR0362 | GRAY | J1703 | 7/24/2017 | 238 | J1703 | 7/26/2017 | 241 | 2 |
| OR0369 | GRAY | W17203 | 7/24/2017 | 214 | W17203 | 7/27/2017 | 217 | 3 |
| OR0370 | GRAY | W17203 | 7/24/2017 | 182 | W17203 | 7/27/2017 | 186 | 3 |
| OR0372 | GRAY | W17203 | 7/24/2017 | 196 | W17203 | 8/27/2017 | 220 | 34 |
| OR0372 | GRAY | W17203 | 8/27/2017 | 220 | W17203 | 8/30/2017 | 220 | 3 |
| OR0372 | GRAY | W17203 | 8/30/2017 | 220 | W17203 | 8/31/2017 | 221 | 1 |
| OR0376 | GRAY | J1703 | 7/24/2017 | 231 | J1703 | 7/25/2017 | 232 | 1 |
| OR0376 | GRAY | J1703 | 7/25/2017 | 232 | J1703 | 7/28/2017 | 236 | 3 |
| OR0444 | GRAY | W17401 | 6/24/2017 | 213 | W17401 | 7/25/2017 | 228 | 31 |
| OR0452 | GRAY | <i>J1701</i> | <i>6/23/2017</i> | <i>210</i> | <i>W17203</i> | <i>7/25/2017</i> | <i>203</i> | <i>32</i> |
| OR0452 | GRAY | W17203 | 7/25/2017 | 203 | W17203 | 7/26/2017 | 221 | 1 |
| OR0463 | GRAY | <i>J1701</i> | <i>6/23/2017</i> | <i>214</i> | <i>JK1702</i> | <i>6/24/2017</i> | <i>215</i> | <i>1</i> |
| OR0465 | GRAY | J1701 | 6/23/2017 | 218 | J1701 | 6/24/2017 | 218 | 1 |
| OR0468 | GRAY | <i>W17201</i> | <i>6/23/2017</i> | <i>191</i> | <i>W17203</i> | <i>6/24/2017</i> | <i>190</i> | <i>1</i> |
| OR0472 | GRAY | W17203 | 6/23/2017 | 237 | W17203 | 6/24/2017 | 237 | 1 |
| OR0472 | GRAY | W17203 | 6/24/2017 | 237 | W17203 | 7/27/2017 | 250 | 33 |
| OR0472 | GRAY | W17203 | 7/27/2017 | 250 | W17203 | 7/28/2017 | 255 | 1 |
| OR0476 | GRAY | W17401 | 7/22/2017 | 235 | W17401 | 7/23/2017 | 233 | 1 |
| OR0484 | GRAY | JK1702 | 7/22/2017 | 225 | JK1702 | 7/23/2017 | 226 | 1 |
| OR0484 | GRAY | JK1702 | 7/23/2017 | 226 | JK1702 | 7/25/2017 | 225 | 2 |
| OR0485 | GRAY | JK1702 | 7/22/2017 | 249 | JK1702 | 7/24/2017 | 250 | 2 |
| OR0489 | GRAY | J1701 | 7/22/2017 | 214 | J1701 | 7/23/2017 | 217 | 1 |
| OR1327 | GRAY | J1703 | 7/26/2017 | 244 | J1703 | 7/27/2017 | 242 | 1 |
| OR1327 | GRAY | J1703 | 7/27/2017 | 242 | J1703 | 7/28/2017 | 246 | 1 |
| OR1332 | GRAY | W17203 | 7/26/2017 | 182 | W17203 | 7/27/2017 | 182 | 1 |
| OR1333 | GRAY | W17203 | 7/26/2017 | 180 | W17203 | 7/27/2017 | 182 | 1 |
| OR1335 | GRAY | W17203 | 7/26/2017 | 240 | W17203 | 7/27/2017 | 240 | 1 |
| OR1350 | GRAY | JK1702 | 7/25/2017 | 211 | JK1702 | 7/26/2017 | 211 | 1 |
| OR1365 | GRAY | <i>W17202</i> | <i>7/28/2017</i> | <i>229</i> | <i>W17203</i> | <i>8/31/2017</i> | <i>250</i> | <i>34</i> |
| OR1382 | GRAY | W17203 | 8/28/2017 | 196 | W17203 | 8/29/2017 | 196 | 1 |

Appendix D. Continued

| Tag Number | Species | Release Data | | | Recapture Data | | | Days at Large |
|------------|---------|---------------|------------------|------------|----------------|------------------|------------|---------------|
| | | Station | Date | Length | Station | Date | Length | |
| OR1393 | GRAY | W17203 | 8/27/2017 | 192 | W17203 | 8/28/2017 | 191 | 1 |
| OR1393 | GRAY | W17203 | 8/28/2017 | 191 | W17203 | 8/29/2017 | 192 | 1 |
| OR1395 | GRAY | W17203 | 8/27/2017 | 231 | W17203 | 8/29/2017 | 231 | 2 |
| OR1395 | GRAY | W17203 | 8/29/2017 | 231 | W17203 | 8/30/2017 | 232 | 1 |
| OR1395 | GRAY | W17203 | 8/30/2017 | 232 | W17203 | 8/31/2017 | 233 | 1 |
| OR1396 | GRAY | W17203 | 8/27/2017 | 189 | W17203 | 8/28/2017 | 183 | 1 |
| OR1397 | GRAY | W17203 | 8/27/2017 | 185 | W17203 | 8/28/2017 | 187 | 1 |
| OR1398 | GRAY | W17203 | 8/27/2017 | 182 | W17203 | 8/28/2017 | 190 | 1 |
| OR1415 | GRAY | W17203 | 8/31/2017 | 189 | W17203 | 9/1/2017 | 190 | 1 |
| OR1518 | GRAY | J1701 | 6/18/2017 | 274 | J1701 | 6/23/2017 | 274 | 5 |
| OR1518 | GRAY | J1701 | 6/23/2017 | 274 | J1701 | 7/25/2017 | 282 | 32 |
| OR1522 | GRAY | J1701 | 6/18/2017 | 255 | W17401 | 6/20/2017 | 256 | 2 |
| OR1523 | GRAY | J1701 | 6/18/2017 | 272 | W17201 | 6/19/2017 | 274 | 1 |
| OR1524 | GRAY | J1701 | 6/18/2017 | 288 | W17401 | 8/28/2017 | 312 | 71 |
| OR1525 | GRAY | J1701 | 6/18/2017 | 296 | JK1702 | 7/23/2017 | 304 | 35 |
| OR1532 | GRAY | W17401 | 6/18/2017 | 309 | J1703 | 7/24/2017 | 315 | 36 |
| OR1535 | GRAY | W17401 | 6/18/2017 | 313 | W17201 | 6/24/2017 | 310 | 6 |
| OR1545 | GRAY | W17401 | 6/18/2017 | 290 | J1701 | 6/19/2017 | 290 | 1 |
| OR1545 | GRAY | J1701 | 6/19/2017 | 290 | JK1703 | 8/27/2017 | 320 | 69 |
| OR1563 | GRAY | JK1702 | 6/19/2017 | 282 | JK1702 | 6/20/2017 | 280 | 1 |
| OR1600 | GRAY | J1701 | 6/20/2017 | 315 | W17201 | 6/22/2017 | 314 | 2 |
| OR1600 | GRAY | W17201 | 6/22/2017 | 314 | W17201 | 6/24/2017 | 313 | 2 |
| OR1601 | GRAY | W17201 | 6/23/2017 | 318 | W17201 | 6/24/2017 | 318 | 1 |
| OR1610 | GRAY | W17201 | 6/22/2017 | 256 | W17203 | 9/2/2017 | 288 | 72 |
| OR1619 | GRAY | W17201 | 6/22/2017 | 318 | W17201 | 6/24/2017 | 320 | 2 |
| OR1621 | GRAY | W17203 | 6/22/2017 | 296 | W17203 | 6/24/2017 | 298 | 2 |
| OR1621 | GRAY | W17203 | 6/24/2017 | 298 | JK1702 | 7/24/2017 | 299 | 30 |
| OR1622 | GRAY | W17203 | 6/22/2017 | 288 | W17203 | 9/1/2017 | 309 | 71 |
| OR1624 | GRAY | W17203 | 6/22/2017 | 297 | W17203 | 6/23/2017 | 297 | 1 |
| OR1624 | GRAY | W17203 | 6/23/2017 | 297 | W17203 | 6/24/2017 | 297 | 1 |
| OR1625 | GRAY | W17203 | 6/22/2017 | 313 | W17201 | 6/23/2017 | 313 | 1 |
| OR1657 | GRAY | W17201 | 6/19/2017 | 335 | W17201 | 6/20/2017 | 335 | 1 |
| OR1657 | GRAY | W17201 | 6/20/2017 | 335 | W17201 | 6/22/2017 | 334 | 2 |
| OR1657 | GRAY | W17201 | 6/22/2017 | 334 | W17201 | 6/23/2017 | 333 | 1 |
| OR1657 | GRAY | W17201 | 6/23/2017 | 333 | W17201 | 6/24/2017 | 332 | 1 |
| OR1658 | GRAY | W17201 | 6/19/2017 | 338 | W17201 | 6/20/2017 | 341 | 1 |
| OR1658 | GRAY | W17201 | 6/20/2017 | 341 | W17201 | 6/21/2017 | 340 | 1 |
| OR1658 | GRAY | W17201 | 6/21/2017 | 340 | W17201 | 6/22/2017 | 339 | 1 |
| OR1658 | GRAY | W17201 | 6/22/2017 | 339 | W17201 | 6/23/2017 | 338 | 1 |
| OR1658 | GRAY | W17201 | 6/23/2017 | 338 | W17201 | 6/24/2017 | 339 | 1 |
| OR1661 | GRAY | W17201 | 6/19/2017 | 297 | W17203 | 6/22/2017 | 298 | 3 |
| OR1661 | GRAY | W17203 | 6/22/2017 | 298 | W17203 | 6/24/2017 | 297 | 2 |
| OR1667 | GRAY | W17201 | 6/19/2017 | 330 | W17201 | 6/20/2017 | 331 | 1 |
| OR1671 | GRAY | JK1701 | 6/19/2017 | 336 | JK1702 | 6/24/2017 | 338 | 5 |
| OR1678 | GRAY | W17201 | 6/20/2017 | 307 | W17201 | 6/21/2017 | 308 | 1 |
| OR1680 | GRAY | W17201 | 6/20/2017 | 306 | W17201 | 6/21/2017 | 305 | 1 |
| OR1681 | GRAY | W17201 | 6/20/2017 | 272 | W17201 | 6/21/2017 | 272 | 1 |
| OR1681 | GRAY | W17201 | 6/21/2017 | 272 | W17201 | 6/22/2017 | 270 | 1 |

Appendix D. Continued

| Tag Number | Species | Release Data | | | Recapture Data | | | Days at Large |
|------------|---------|---------------|------------------|------------|----------------|------------------|------------|---------------|
| | | Station | Date | Length | Station | Date | Length | |
| OR1685 | GRAY | W17203 | 6/20/2017 | 280 | W17203 | 9/2/2017 | 310 | 74 |
| OR1694 | GRAY | W17203 | 6/20/2017 | 310 | W17201 | 6/23/2017 | 310 | 3 |
| OR1706 | GRAY | W17201 | 6/20/2017 | 261 | W17201 | 6/21/2017 | 262 | 1 |
| OR1708 | GRAY | W17201 | 6/20/2017 | 269 | W17202 | 7/28/2017 | 290 | 38 |
| OR1708 | GRAY | W17202 | 7/28/2017 | 290 | W17203 | 8/31/2017 | 304 | 34 |
| OR1710 | GRAY | W17201 | 6/20/2017 | 305 | JK1702 | 6/24/2017 | 304 | 4 |
| OR1711 | GRAY | W17201 | 6/20/2017 | 342 | W17201 | 6/21/2017 | 341 | 1 |
| OR1716 | GRAY | W17201 | 6/20/2017 | 331 | W17201 | 6/21/2017 | 335 | 1 |
| OR1717 | GRAY | W17201 | 6/20/2017 | 347 | W17201 | 6/21/2017 | 347 | 1 |
| OR1718 | GRAY | W17201 | 6/20/2017 | 315 | W17201 | 6/21/2017 | 315 | 1 |
| OR1719 | GRAY | W17201 | 6/20/2017 | 354 | W17201 | 6/21/2017 | 355 | 1 |
| OR1719 | GRAY | W17201 | 6/21/2017 | 355 | JK1702 | 6/24/2017 | 345 | 3 |
| OR1720 | GRAY | W17201 | 6/20/2017 | 303 | JK1702 | 6/23/2017 | 290 | 3 |
| OR1721 | GRAY | W17201 | 6/20/2017 | 293 | W17201 | 6/23/2017 | 294 | 3 |
| OR1724 | GRAY | W17201 | 6/20/2017 | 334 | W17201 | 6/23/2017 | 332 | 3 |
| OR1725 | GRAY | W17201 | 6/20/2017 | 305 | W17201 | 6/21/2017 | 305 | 1 |
| OR1726 | GRAY | W17201 | 6/21/2017 | 350 | W17201 | 6/22/2017 | 350 | 1 |
| OR1726 | GRAY | W17201 | 6/22/2017 | 350 | W17201 | 6/23/2017 | 349 | 1 |
| OR1726 | GRAY | W17201 | 6/23/2017 | 349 | W17201 | 6/24/2017 | 350 | 1 |
| OR1729 | GRAY | W17201 | 6/21/2017 | 309 | W17201 | 6/22/2017 | 306 | 1 |
| OR1729 | GRAY | W17201 | 6/22/2017 | 306 | W17201 | 6/23/2017 | 304 | 1 |
| OR1729 | GRAY | W17201 | 6/23/2017 | 304 | W17201 | 6/24/2017 | 300 | 1 |
| OR1730 | GRAY | W17201 | 6/21/2017 | 337 | W17201 | 6/22/2017 | 332 | 1 |
| OR1736 | GRAY | W17201 | 6/21/2017 | 329 | W17201 | 6/22/2017 | 328 | 1 |
| OR1736 | GRAY | W17201 | 6/22/2017 | 328 | W17201 | 6/23/2017 | 329 | 1 |
| OR1736 | GRAY | W17201 | 6/23/2017 | 329 | W17201 | 6/24/2017 | 330 | 1 |
| OR1737 | GRAY | W17201 | 6/21/2017 | 306 | W17201 | 6/22/2017 | 304 | 1 |
| OR1738 | GRAY | W17201 | 6/21/2017 | 345 | W17201 | 6/22/2017 | 345 | 1 |
| OR1753 | GRAY | JK1702 | 6/23/2017 | 319 | JK1702 | 6/24/2017 | 320 | 1 |
| OR1753 | GRAY | JK1702 | 6/24/2017 | 320 | JK1702 | 7/24/2017 | 318 | 30 |
| OR1753 | GRAY | JK1702 | 7/24/2017 | 318 | JK1702 | 7/25/2017 | 319 | 1 |
| OR1760 | GRAY | J1701 | 6/23/2017 | 295 | JK1702 | 7/23/2017 | 299 | 30 |
| OR1760 | GRAY | JK1702 | 7/23/2017 | 299 | JK1702 | 7/25/2017 | 300 | 2 |
| OR1764 | GRAY | J1701 | 6/23/2017 | 256 | JK1702 | 7/25/2017 | 260 | 32 |
| OR1764 | GRAY | JK1702 | 7/25/2017 | 260 | JK1702 | 7/28/2017 | 267 | 3 |
| OR1766 | GRAY | J1701 | 6/23/2017 | 351 | JK1702 | 6/24/2017 | 350 | 1 |
| OR1773 | GRAY | W17201 | 6/23/2017 | 304 | W17203 | 6/24/2017 | 305 | 1 |
| OR1774 | GRAY | W17201 | 6/23/2017 | 273 | W17201 | 6/24/2017 | 274 | 1 |
| OR1774 | GRAY | W17201 | 6/24/2017 | 274 | W17202 | 7/28/2017 | 281 | 34 |
| OR1775 | GRAY | W17201 | 6/23/2017 | 347 | W17201 | 6/24/2017 | 348 | 1 |
| OR1794 | GRAY | W17401 | 6/23/2017 | 308 | JK1702 | 7/22/2017 | 312 | 29 |
| OR1811 | GRAY | J1701 | 6/20/2017 | 269 | J1701 | 6/21/2017 | 269 | 1 |
| OR1813 | GRAY | J1701 | 6/20/2017 | 287 | JK1702 | 7/25/2017 | 293 | 35 |
| OR1818 | GRAY | J1701 | 6/20/2017 | 285 | W17201 | 6/22/2017 | 314 | 2 |
| OR1902 | GRAY | JK1702 | 7/23/2017 | 339 | JK1702 | 7/24/2017 | 339 | 1 |
| OR1910 | GRAY | JK1702 | 7/22/2017 | 294 | JK1702 | 7/24/2017 | 298 | 2 |
| OR1912 | GRAY | JK1702 | 7/22/2017 | 287 | JK1702 | 7/24/2017 | 294 | 2 |
| OR1915 | GRAY | JK1702 | 7/22/2017 | 289 | JK1702 | 7/25/2017 | 276 | 3 |

Appendix D. Continued

| Tag Number | Species | Release Data | | | Recapture Data | | | Days at Large |
|------------|---------|---------------|------------------|------------|----------------|------------------|------------|---------------|
| | | Station | Date | Length | Station | Date | Length | |
| OR1915 | GRAY | JK1702 | 7/25/2017 | 276 | JK1702 | 7/26/2017 | 282 | 1 |
| OR1917 | GRAY | JK1702 | 7/22/2017 | 329 | JK1702 | 7/24/2017 | 317 | 2 |
| OR1944 | GRAY | JK1702 | 6/24/2017 | 304 | JK1702 | 7/25/2017 | 310 | 31 |
| OR1944 | GRAY | JK1702 | 7/25/2017 | 310 | JK1702 | 7/26/2017 | 309 | 1 |
| OR1958 | GRAY | W17401 | 6/21/2017 | 277 | W17401 | 6/22/2017 | 276 | 1 |
| OR1971 | GRAY | J1701 | 6/21/2017 | 300 | JK1702 | 7/22/2017 | 299 | 31 |
| OR1971 | GRAY | JK1702 | 7/22/2017 | 299 | JK1702 | 7/24/2017 | 280 | 2 |
| OR1983 | GRAY | JK1702 | 6/22/2017 | 355 | JK1702 | 7/22/2017 | 350 | 30 |
| OR1990 | GRAY | JK1702 | 6/22/2017 | 316 | J1703 | 7/25/2017 | 316 | 33 |
| OR2003 | GRAY | J1703 | 7/26/2017 | 260 | W17203 | 8/27/2017 | 265 | 32 |
| OR2003 | GRAY | W17203 | 8/27/2017 | 265 | W17203 | 8/28/2017 | 255 | 1 |
| OR2020 | GRAY | JK1702 | 7/26/2017 | 301 | JK1702 | 7/27/2017 | 305 | 1 |
| OR2056 | GRAY | JK1702 | 7/24/2017 | 319 | JK1702 | 7/25/2017 | 316 | 1 |
| OR2063 | GRAY | J1701 | 7/24/2017 | 285 | W17203 | 8/30/2017 | 302 | 37 |
| OR2069 | GRAY | W17401 | 7/23/2017 | 261 | W17401 | 7/24/2017 | 265 | 1 |
| OR2077 | GRAY | J1703 | 7/24/2017 | 320 | J1703 | 7/27/2017 | 319 | 3 |
| OR2116 | GRAY | J1703 | 7/24/2017 | 335 | J1703 | 7/26/2017 | 335 | 2 |
| OR2138 | GRAY | JK1702 | 7/25/2017 | 321 | JK1702 | 7/26/2017 | 325 | 1 |
| OR2148 | GRAY | J1701 | 7/25/2017 | 255 | J1701 | 7/26/2017 | 255 | 1 |
| OR2149 | GRAY | W17203 | 7/25/2017 | 250 | W17203 | 7/27/2017 | 256 | 2 |
| OR2149 | GRAY | W17203 | 7/27/2017 | 256 | W17203 | 7/28/2017 | 257 | 1 |
| OR2210 | GRAY | W17203 | 8/28/2017 | 264 | W17203 | 8/29/2017 | 264 | 1 |
| OR2618 | GRAY | W17203 | 8/29/2017 | 273 | W17203 | 8/31/2017 | 273 | 2 |
| OR2665 | GRAY | JK1702 | 7/28/2017 | 305 | JK1703 | 8/28/2017 | 309 | 31 |
| OR2712 | GRAY | W17203 | 9/1/2017 | 265 | W17203 | 9/2/2017 | 267 | 1 |
| OR2749 | GRAY | - | - | - | W17203 | 8/31/2017 | 270 | - |
| OR1732 | HBWF | W17201 | 6/21/2017 | 388 | W17201 | 6/22/2017 | 386 | 1 |
| OR0208 | LSCS | W17401 | 6/22/2017 | 191 | W17401 | 6/23/2017 | * | 1 |
| OR1866 | RDWF | W17401 | 6/22/2017 | 359 | W17401 | 6/23/2017 | 360 | 1 |
| OR0480 | RDWF | W17401 | 7/22/2017 | 194 | W17401 | 7/23/2017 | 194 | 1 |
| OR1391 | RDWF | W17401 | 8/27/2017 | 217 | W17401 | 8/29/2017 | 217 | 2 |
| OR1413 | RDWF | W17401 | 9/1/2017 | 242 | W17401 | 9/2/2017 | 244 | 1 |
| OR1659 | RDWF | W17201 | 6/19/2017 | 377 | W17201 | 6/20/2017 | 379 | 1 |
| OR1659 | RDWF | W17201 | 6/20/2017 | 379 | W17201 | 6/21/2017 | 378 | 1 |