

Community-based Lake Trout (*Salvelinus namaycush*) monitoring program in Husky Lakes NT, 2014-2015

**Benjamin C. Kissinger, Neil J. Mochnacz, Andrew J. Chapelsky and
James D. Reist**

**Ontario and Prairies Region
Fisheries and Oceans Canada
501 University Crescent
Winnipeg, MB R3T 2N6**

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ABSTRACT

Kissinger, B.C., Mochnacz, N.J., Chapelsky, A.J. and Reist, J.D. 2020. Community-based Lake Trout (*Salvelinus namaycush*) monitoring program in Husky Lakes NT, 2014-2015. Can. Data Rep. Fish. Aquat. Sci. 1302: v + 16 p.

Husky Lakes are a series of five interconnected lake basins, located near Inuvik and Tuktoyaktuk in the Inuvialuit Settlement Region of the Northwest Territories. These lakes are influenced by marine water from the Beaufort Sea creating a salinity gradient that ranges from 1 to 17 psu, innermost to outermost respectively. Though this is a brackish water ecosystem, numerous freshwater fish species are observed including Lake Trout which are a staple in Indigenous diets. Prior to the completion of the Inuvik to Tuktoyaktuk Highway in 2017, access to these lakes by local harvesters via ground most commonly occurred during periods of ice and snow cover. The completion of the highway now allows improved year-round access, which will likely facilitate increased fishing pressure on the lakes along the highway. To collect additional baseline information prior to highway completion and samples to better understand the novel ecology of the brackish-water resident Lake Trout, a community-based monitoring Lake Trout program was established involving local harvesters from Inuvik and Tuktoyaktuk. A total of 244 Lake Trout harvested by the subsistence fishery were sampled by this program during spring 2014 and 2015. Lake Trout were 21 years old on average and ranged from 9 to 51 years of age; Lake Trout fork length was 653 mm on average and ranged from 473 to 900 mm. When compared to data reported in surveys conducted using similar methods in 2000 to 2004, Lake Trout were generally similar in size and age structure, suggesting little change in population demographics between sampling events. Collaborations with local harvesters demonstrate the effectiveness of community-based programs for collecting samples and data relevant to management and research while minimizing impacts to local subsistence fisheries.

RÉSUMÉ

Kissinger, B.C., Mochnacz, N.J., Chapelsky, A.J. and Reist, J.D. 2020. Community-based Lake Trout (*Salvelinus namaycush*) monitoring program in Husky Lakes NT, 2014-2015. Can. Data Rep. Fish. Aquat. Sci. 1302: v + 16 p.

Les lacs Husky forment une série de cinq bassins lacustres interconnectés qui sont situés près d’Inuvik et de Tuktoyaktuk, dans la région désignée des Inuvialuit des Territoires du Nord-Ouest. En raison de l’influence de l’eau de mer provenant de la mer de Beaufort, ces lacs présentent un gradient de salinité variant de 1 à 17 USP, des zones d’eau douce aux zones d’eau salée, respectivement. Bien qu’il s’agisse d’un écosystème d’eau saumâtre, de nombreuses espèces de poissons d’eau douce y sont observées, comme le touladi, qui est un produit de base dans l’alimentation des collectivités autochtones. Avant la construction de la route qui relie Inuvik et Tuktoyaktuk en 2017, les pêcheurs de la région ne pouvaient généralement accéder à ces lacs par voie terrestre que lors des périodes où il y avait une couverture de glace et de neige. La route permet désormais un accès aux lacs à longueur d’année, ce qui contribuera probablement à exercer une pression accrue de la pêche sur les lacs situés le long de la route. Pour recueillir des données de référence supplémentaires avant l’achèvement de la route et prélever des échantillons permettant de mieux comprendre la nouvelle écologie du touladi vivant en eaux saumâtres, un programme de surveillance communautaire du touladi a été mis en place avec la participation de pêcheurs locaux d’Inuvik et de Tuktoyaktuk. Au total, 244 touladis pêchés lors d’activités de pêche de subsistance ont été échantillonnés dans le cadre du programme aux printemps 2014 et 2015. L’âge moyen des touladis était de 21 ans et variait de 9 à 51 ans, alors que la longueur à la fourche moyenne des poissons était de 653 mm et variait de 473 à 900 mm. Lorsqu’on compare les données recueillies aux résultats des relevés effectués à l’aide de méthodes semblables en 2000 et en 2004, on constate que les touladis avaient généralement une taille et une structure d’âge similaires, ce qui suggère que la démographie de la population a peu changé d’un échantillonnage à l’autre. La collaboration avec les pêcheurs locaux démontre à quel point les programmes communautaires sont efficaces pour prélever des données et des échantillons utiles à la gestion et à la recherche tout en ayant des répercussions minimales sur les pêches de subsistance locales.

INTRODUCTION

Lake Trout (*Salvelinus namaycush*) are widely distributed within North America. Their natural distribution ranges from the Laurentian Great Lakes to the Arctic Archipelago (Scott and Crossman 1973). Lake Trout have typically been considered extremely stenohaline compared to other species within Salmoninae (Hiroi and McCormick 2007) and are predominantly found in freshwater oligotrophic lakes, though documentation of river use is observed throughout their distribution (Scott and Crossman 1973). They are seldom observed in salinities > 1 practical salinity unit (psu; Hiroi and McCormick 2007) and are rarely documented but do occasionally occur in salt water (Swanson et al. 2010). Unique populations occur in the Husky Lakes estuary, NT, residing in salinities 12 psu or greater based on capture locations (Roux et al. 2014), otolith microchemistry (Kissinger et al. 2016), and genetic analyses (Kissinger et al. 2018). These findings suggest that at least some Lake Trout populations in this estuary complete their entire life cycles within brackish water (Kissinger et al. 2016).

Husky Lakes are a series of five interconnected lake basins draining north-easterly approximately 150 km into the Beaufort Sea (Carmack and Macdonald 2008). The presence of both fresh and marine water inputs into the lakes creates a salinity gradient transitioning from approximately 1 psu in the southern-most basin to 17 psu in the northern-most basin (Roux et al. 2014). This salinity gradient drives variation in fish species composition among basins, transitioning from predominantly common freshwater species (e.g., Northern Pike *Esox lucius*, Lake Whitefish *Coregonus clupeaformis*, and Arctic Grayling *Thymallus arcticus*) in the southern basin to mostly marine species (e.g., Starry Flounder *Platichthys stellatus*, Arctic Flounder *Liopsetta glacialis*, and Pacific Herring *Clupea pallasi*) in the northern basins (Roux et al. 2016). This ecosystem represents a unique environment where the salinities in all lake basins remain relatively stable annually (i.e., 2-4 psu change at a location over the course of the winter; Macdonald et al. 1999), compared to fish that exist in estuaries with a greater tidal influence (i.e., Mackenzie Delta ~ 20 psu change; Macdonald et al. 1999).

While research into how Lake Trout use the brackish water of Husky Lakes is new to science, local fishers of the Inuvialuit Settlement Region (ISR) have been using this resource for generations as a food source (personal communication William Day). Lake Trout in Husky Lakes are highly sought after by subsistence harvesters, particularly during the early spring months (April-June) by ice fishing (Hart 2011). In particular, substantial time is spent by local harvesters pursuing Lake Trout on Husky Lakes where numerous camps and cabins have been built along the lake shoreline. Prior to opening the Inuvik to Tuktoyaktuk Highway (ITH) in 2017, access by ground to the lakes was almost exclusively completed by snowmobile when conditions permitted (~43 km northeast of Inuvik and ~23 km east of Tuktoyaktuk, Figure 1). With the

completion of the ITH, the lakes are now more easily accessible throughout the year now that they are in closer (~ 1 km) proximity to the highway (Figure 1).

Due to the importance of Lake Trout in local fisheries and the construction of the ITH, our objective was to better understand the ecology of Lake Trout within Husky Lakes and collect baseline data prior to the completion of the ITH. To accomplish this, we continued a modified version of the Husky Lakes Lake Trout monitoring program, established between 2000 and 2004 (see Roux et al. 2014 for details). Through this program we partnered with local monitors selected by the Inuvik and Tuktoyaktuk Hunters and Trappers Committees (HTC) to collect biological information and tissue samples from fish harvested by the communities during late winter and early spring. Data collected through this program has also provided necessary information to further address research related to Lake Trout ecology in Husky Lakes (see Kissinger et al. 2016, 2018, 2019a and 2019b).

MATERIALS AND METHODS

FISH CAPTURE AND SAMPLING

Sampling by local monitors was conducted between January 1st and June 30th of 2014 and 2015, but most fish harvest occurred in May when access to the lakes was safest, days were long, and catches were abundant. This harvest period coincides with traditional use of these lakes (personal communication W. Day). Samples were collected by trained monitors from Inuvik and Tuktoyaktuk. In an attempt to sample fish from a range of locations throughout Husky Lakes, local monitors were selected evenly from Inuvik and Tuktoyaktuk with the assistance of the local Hunters and Trappers Committee, as fishers from each community use different parts of the Husky Lakes area more frequently. Monitors were selected who had knowledge of the area, had fished the lakes, and were able to complete training associated with fish sampling. Each monitor was provided with a kit with all the sampling equipment and data sheets necessary to collect fish fork lengths (mm), round weights (g), sex, diet, location of capture, otoliths, and a fin clip. By sampling only otoliths and fin clips, and by taking a minimum number of measurements, harvesters were able to retain their fish for consumption after sampling by the monitor. Accordingly, this program did not introduce additional harvesting pressure to the fishery and sampled fish were not wasted. In addition, while capture locations were recorded by the monitors, the location data was only used to describe capture by basin (i.e., 1, 2, 3, 4, 5; Figure 1). The exact locations are not presented here out of respect for the local harvesters.

OTOLITH AGE ESTIMATION

A subset of Lake Trout otoliths were randomly selected and aged following protocols described in Kissinger et al. (2016). Specifically, otoliths were inspected under a dissecting microscope

(Leica M125, Concord, ON, Canada) to determine quality. Otoliths that were crystalline or had vaterite inclusions were not aged as the impacts to the otolith structure made it impossible to accurately identify annuli. The dried otolith was then embedded in epoxy (ColdCure, Auburn, Washington, USA) with the sulcus facing up and allowed to harden. After hardening, otolith section planes were marked under a dissection microscope to ensure that the transverse section passed through the nucleus, thus exposing all annuli. The otolith was then positioned in the chuck of a low speed saw (Buehler Isomet, Buehler Ltd., Lake Buff, Illinois, USA) while viewing the transect plane through a dissecting microscope. Thin sections (approximately 4 mm) were taken and polished, exposing the nucleus and annuli. Age estimations were then made by two independent readers along both the dorsal and ventral lobes of the otolith analysed under a dissecting microscope using reflected light. Annuli were identified as dark bands representing decreased winter growth (Casselman and Gunn 1992). Age estimates that were not in agreement were assessed by both readers again; if agreement was not reached, the otolith was not assigned an age.

RESULTS

In total, 244 Lake Trout specimens were submitted by local monitors to this program, $n = 100$ in 2014 and $n = 144$ in 2015 (Appendix 1). Lake Trout sampled through the monitoring program came from basins 1, 2, and 3 of Husky Lakes but were predominantly from basin 2 ($n = 238$; Figure 1, Table 1). Of the Lake Trout sampled from Husky Lakes, 87 were female, 85 were male and 71 were unknown (unknown fish represent fish where sex was not recorded or was undetermined). Lake Trout were 21 years old on average and ranged in age from 9 to 51 years (Figure 2). Lake Trout fork length was 653 mm on average and ranged from 473 mm to 900 mm (Figure 3). When compared to data reported from local monitors described in Roux et al. (2014), Lake Trout were of a similar size, age, and sex ratio (Table 2).

DISCUSSION

These data represent an additional time point for Lake Trout populations within Husky Lakes prior to the completion of the Inuvik to Tuktoyaktuk Highway, complementing data described in Roux et al. (2014) and Kissinger et al. (2019b). Similarity in Lake Trout parameters between 2000 and 2015 for fish sampled by local monitors suggest length and age distributions of harvested fish have not drastically changed between these sampling periods. Here we show the effectiveness of collaborative local monitoring programs to collect samples for management and research while minimizing impact on local subsistence fisheries.

The collection of biological data and tissue samples through a local monitoring program as described in the present study and similarly by Roux et al. (2014) provide opportunities to compare changes in the size (fork length and weight) and age distribution of fish harvested in the subsistence fishery over time. While the data presented here are limited to biological metrics, incorporating additional methods to estimate abundance or relative abundance would benefit our understanding of population status and trends over time. The ongoing or periodic collection of biological data described here, in addition to standardized assessments of abundance (e.g., catch-per-unit-effort (CPUE), multi-mesh gillnets) can support fisheries co-management of the Husky Lakes estuary by assessing trends over time. However, it is important to recognize that consistent application of sampling methods (i.e., effort, gear type, timing, location, and analysis), and understanding biases of the data are key elements to consider prior to assessments of trends. Additional metrics such as effort (hours fished) and harvest data (catch rate and total harvest) can be incorporated with methods used and discussed in this study to aid managers in decision-making. In combination, an understanding of changes in population abundance, biological metrics (e.g., length and age distributions) and harvest rates can provide powerful information to track trends over time as use at these lakes change.

Tissue samples collected by this program have allowed researchers to identify the presence of multiple Lake Trout life histories, including the novel brackish-water resident life history (Kissinger et al. 2016), describe the genetic structure of Lake Trout in the Husky Lakes drainage (Kissinger et al. 2018), and compare growth rates among life histories within Husky Lakes (Kissinger et al. 2019a). Kissinger et al. (2019b) provides a review of these investigations using many of the samples described here. These samples and data (Appendix 1) will be archived in the Government of Canada open data portal to allow for future research. Tissue samples from sampled fish are currently stored at the Department of Fisheries and Oceans Freshwater Institute (Winnipeg, MB).

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TABLES

Table 1. Capture count and locations of Lake Trout submitted through the local Lake Trout monitoring program, 2014 and 2015, Husky Lakes, NT.

Drainage	Basin	Count
Husky Lakes	1	3
Husky Lakes	2	238
Husky Lakes	3	2
Husky Lakes	UK	1

Table 2. Comparison between the present study and Roux et al. (2014) of biological data taken from Lake Trout harvested in the subsistence fishery on Husky Lakes, NT during late winter and spring. Age and fork length are reported as: mean, range, sample size.

	Age	Sex ratio (F:M)	Fork Length (mm)
Roux et al. (2014)	21, 8 - 55, n = 675	1.02, n = 675	664, 223 - 1016, n = 921
Present study	21, 9 - 51, n = 130	1.02, n = 172	653, 473 - 900, n = 240

FIGURES

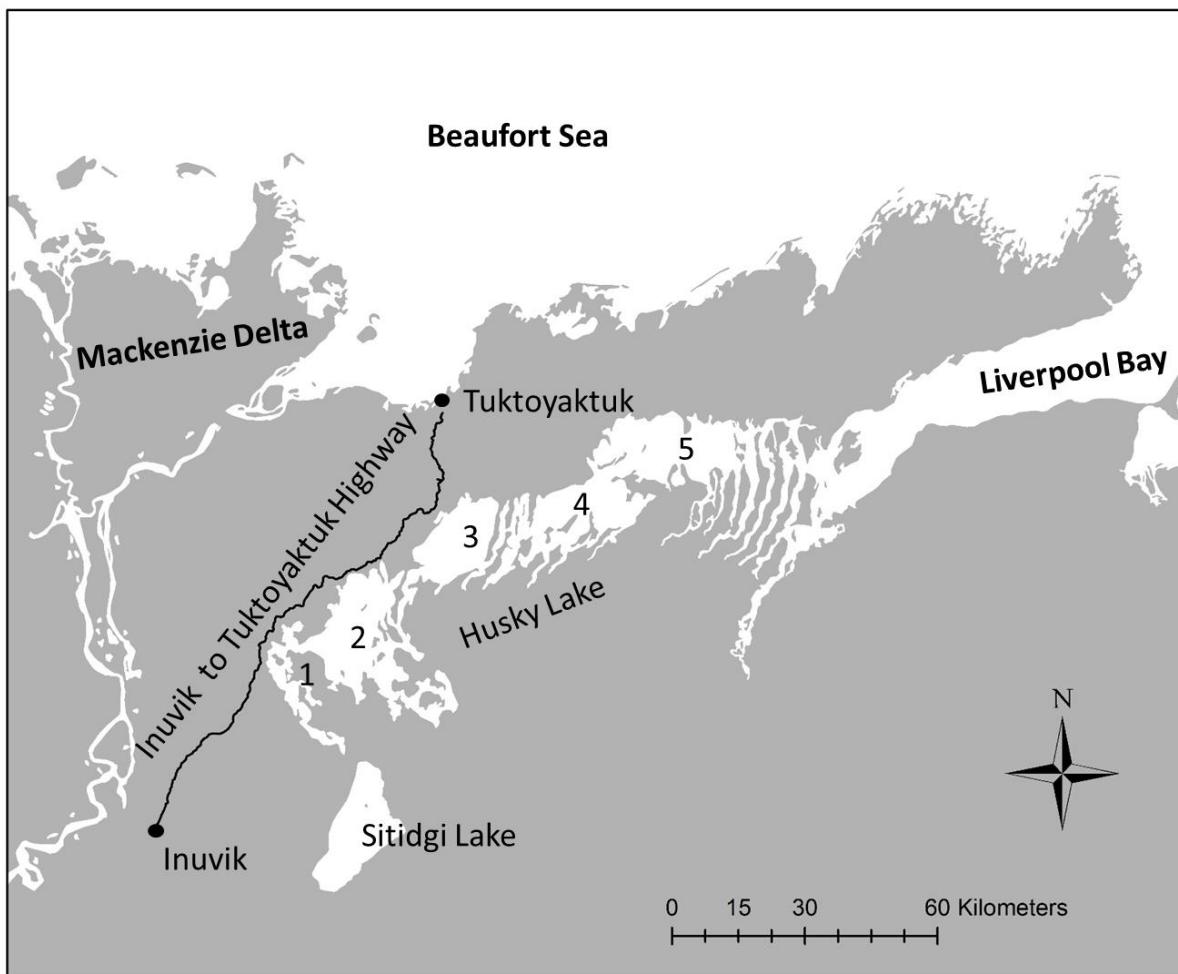


Figure 1. Husky Lakes estuary, NT. Husky Lakes basins are numbered 1 to 5 for illustrative purposes. The approximate location of the Inuvik to Tuktoyaktuk Highway is shown as a black line.

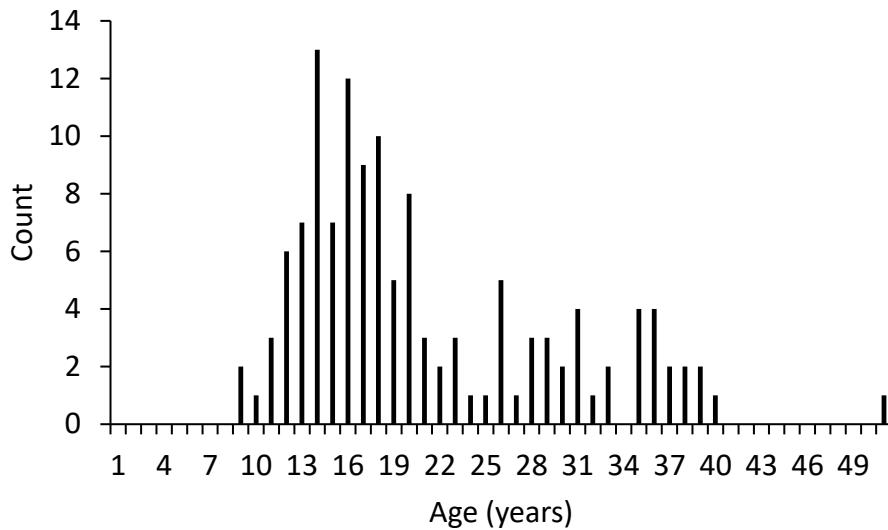


Figure 2. Age distribution ($n = 130$) of Lake Trout sampled by the Husky Lakes NT harvest monitoring program during late winter and early spring of 2014 and 2015.

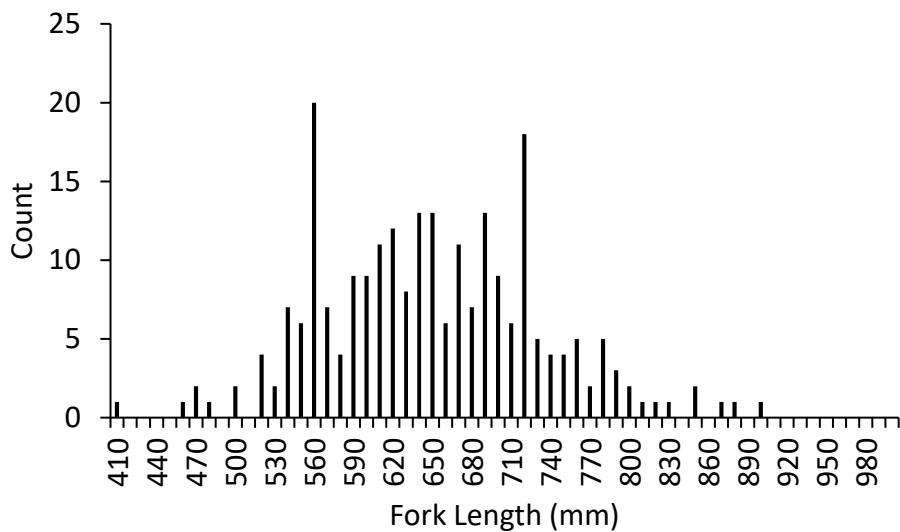


Figure 3. Fork length ($n = 240$) distribution of Lake Trout sampled by the Husky Lakes, NT local monitoring program during late winter and early spring of 2014 and 2015.

APPENDIX

Appendix 1. Data from the Husky Lakes local Lake Trout monitoring program, 2014 and 2015. * unique ID = location abbreviation.species abbreviation.Year.Month.Day.fishID; HL1 = Husky Lake basin 1, HL2 = Husky Lakes basin 2, HL3 = Husky Lakes basin 3, ? = missing information. ** 1, 2, and 3 are the basins within Husky Lakes (see Figure 1).

Unique ID*	Year	Location**	Sex	Fork Length (mm)	Weight (g)	Age
HL2.LAT.14.05.09.001	2014	2	F	770	4599	
HL2.LAT.14.05.09.002	2014	2	F	600	2720	
HL2.LAT.14.05.10.003	2014	2	M	790	5715	
HL2.LAT.14.05.09.004	2014	2	M	580	1859	36
HL2.LAT.14.05.08.005	2014	2	M	610	2267	27
HL2.LAT.14.05.08.006	2014	2	F	750	4082	51
HL2.LAT.14.05.08.007	2014	2	F	630	2495	36
HL2.LAT.14.05.08.008	2014	2	M	580	2132	13
HL2.LAT.14.05.11.009	2014	2	F	720	3538	18
HL2.LAT.14.05.09.010	2014	2	M	640	2722	
HL2.LAT.14.05.10.011	2014	2	M	620	1810	18
HL2.LAT.14.05.10.012	2014	2	M	620	2270	16
HL2.LAT.14.05.08.013	2014	2	M	650	2776	16
HL2.LAT.14.05.08.014	2014	2	M	600	2331	19
HL2.LAT.14.05.08.015	2014	2	M	730	3492	
HL2.LAT.14.05.08.016	2014	2	F	680	3629	31
HL2.LAT.14.05.08.017	2014	2	F	570	2268	14
HL2.LAT.14.05.10.018	2014	2	F	720	4717	15
HL2.LAT.14.05.09.019	2014	2	F	730	4150	
HL2.LAT.14.05.09.020	2014	2	F	700	4082	31
HL2.LAT.14.05.09.021	2014	2	M	700	3583	17
HL2.LAT.14.05.10.022	2014	2	F	770	4717	23
HL2.LAT.14.05.11.023	2014	2	M	730	4581	35
HL2.LAT.14.05.10.024	2014	2	M	410	5053	
HL2.LAT.14.05.11.025	2014	2	M	780	5044	37
HL2.LAT.14.05.09.026	2014	2	F	720	4218	35
HL2.LAT.14.05.11.027	2014	2	M	730	4082	
HL2.LAT.14.05.08.028	2014	2	M	760	4536	
HL2.LAT.14.05.09.029	2014	2	F	760	4990	
HL2.LAT.14.05.09.030	2014	2	F	710	3629	
HL2.LAT.14.05.11.031	2014	2	M	790	5080	20
HL2.LAT.14.05.09.032	2014	2	F	650	2776	
HL2.LAT.14.05.23.033	2014	2	F	559	2100	30
HL2.LAT.14.05.23.034	2014	2	M	559	3200	
HL2.LAT.14.05.08.035	2014	2	F	780	4599	39
HL2.LAT.14.05.23.036	2014	2	M	711	2100	
HL2.LAT.14.05.23.037	2014	2	M	559	1900	17
HL2.LAT.14.05.24.038	2014	2	M	635	2100	15
HL2.LAT.14.05.11.039	2014	2	M	640	2771	22
HL2.LAT.14.05.23.040	2014	2	UK	660	3200	33
HL2.LAT.14.05.09.041	2014	2	M	620	3084	
HL2.LAT.14.05.09.042	2014	2	M	680	3175	
HL2.LAT.14.05.08.043	2014	2	M	740	4717	

Unique ID*	Year	Location**	Sex	Fork Length (mm)	Weight (g)	Age
HL2.LAT.14.05.09.044	2014	2	UK	620	2771	
HL2.LAT.14.05.08.045	2014	2	M	670	3583	35
HL2.LAT.14.05.11.046	2014	2	F	820	5511	16
HL2.LAT.14.05.00.047	2014	2	M	584	2100	
HL2.LAT.14.05.00.048	2014	2	F	710	2720	36
HL2.LAT.14.05.10.049	2014	2	F	700	3855	
HL2.LAT.14.05.10.050	2014	2	F	700	3810	28
HL2.LAT.14.04.26.051	2014	2	M	575		14
HL2.LAT.14.05.00.052	2014	2	F	680	1810	
HL2.LAT.14.05.00.053	2014	2	F	650	3180	
HL2.LAT.14.05.00.054	2014	2	F	660	3400	20
HL2.LAT.14.05.00.055	2014	2	M	690	4800	
HL2.LAT.14.05.00.056	2014	2	F	690	4800	
HL2.LAT.14.05.15.057	2014	2	UK	540	2260	
HL2.LAT.14.05.15.058	2014	2	UK	470	1360	
HL2.LAT.14.05.15.059	2014	2	UK	650	2940	
HL2.LAT.14.05.15.060	2014	2	UK	620	1810	
HL2.LAT.14.05.12.061	2014	2	F	690	2720	
HL2.LAT.14.05.11.062	2014	2	F	540	900	
HL2.LAT.14.05.10.068	2014	2	M	780	4080	
HL2.LAT.14.05.10.069	2014	2	M	710	2720	
HL2.LAT.14.05.10.072	2014	2	M	800	4540	
HL2.LAT.14.05.10.073	2014	2	F	650	2720	
HL2.LAT.14.05.10.074	2014	2	M	650	2720	
HL2.LAT.14.05.04.075	2014	2	M		2500	
HL2.LAT.14.05.04.076	2014	2	M	700	3400	
HL2.LAT.14.05.15.077	2014	2	UK	690	2270	
HL2.LAT.14.05.15.078	2014	2	UK	600	2040	
HL2.LAT.14.05.15.079	2014	2	UK	850	5440	
HL2.LAT.14.05.15.080	2014	2	UK	740	3400	
HL2.LAT.14.05.15.081	2014	2	UK	630	2260	
HL2.LAT.14.05.15.082	2014	2	UK	520	1130	
HL2.LAT.14.05.15.083	2014	2	UK	470	907	
HL2.LAT.14.05.15.084	2014	2	UK	570	1810	
HL2.LAT.14.05.15.085	2014	2	UK	560	1360	
HL2.LAT.14.05.15.086	2014	2	UK	570	1590	
HL2.LAT.14.05.15.087	2014	2	UK	560	1130	
HL2.LAT.14.05.15.088	2014	2	UK	560	1130	
HL2.LAT.14.05.15.089	2014	2	UK	550	1580	
HL2.LAT.14.05.15.090	2014	2	UK	520	1130	
HL2.LAT.14.05.15.091	2014	2	UK	500	1360	
HL2.LAT.14.05.15.092	2014	2	UK	560	1590	
HL2.LAT.14.05.15.093	2014	2	UK	590	3180	
HL2.LAT.14.05.15.094	2014	2	UK	550	1810	
HL2.LAT.14.05.15.095	2014	2	UK	530	1360	
HL2.LAT.14.05.21.096	2014	2	M	686	3200	18
HL2.LAT.14.05.23.097	2014	2	M	635	3100	18
HL2.LAT.14.05.23.098	2014	2	M	610	3100	
HL2.LAT.14.05.23.100	2014	2	F	711	3600	
HL2.LAT.14.05.21.101	2014	2	F	711	3500	16

Unique ID*	Year	Location**	Sex	Fork Length (mm)	Weight (g)	Age
HL2.LAT.14.05.23.102	2014	2	F	553	1700	13
HL2.LAT.14.05.21.103	2014	2	M	660	2700	21
HL2.LAT.14.05.21.104	2014	2	F	648	3250	
HL2.LAT.14.05.15.105	2014	2	F	610	2500	23
HL2.LAT.14.05.15.106	2014	2	F	610	2500	30
HL2.LAT.14.05.15.107	2014	2	M	648	3400	
HL2.LAT.15.05.08.001	2015	2	F	558	3175	
HL2.LAT.15.05.08.002	2015	2	UK	609	3629	
HL2.LAT.15.05.08.003	2015	2	M	584	3629	
HL2.LAT.15.05.08.004	2015	2	UK	558	4082	
HL2.LAT.15.05.08.005	2015	2	F	558	2722	
HL2.LAT.15.05.08.006	2015	2	M	558	4536	
HL2.LAT.15.05.08.007	2015	2	UK	685	4536	
HL2.LAT.15.04.16.008	2015	2	UK	550	2722	12
HL2.LAT.15.05.09.009	2015	2	UK	685	4536	
HL2.LAT.15.04.17.010	2015	2	F	530	2948	13
HL2.LAT.15.04.15.011	2015	2	M	720	4536	
HL2.LAT.15.04.17.012	2015	2	M	650	4082	29
HL2.LAT.15.04.16.013	2015	2	M	690	3629	
HL2.LAT.15.04.17.014	2015	2	F	570	3629	
HL2.LAT.15.04.28.015	2015	2	UK	720	5443	
HL2.LAT.15.04.26.016	2015	2	UK	670	2313	
HL2.LAT.15.04.26.017	2015	2	UK	690	3900	
HL2.LAT.15.05.09.018	2015	2	UK	584	3628	16
HL2.LAT.15.05.10.019	2015	2	UK	609	4082	33
HL2.LAT.15.05.09.020	2015	2	UK	558	3628	16
HL2.LAT.15.05.09.021	2015	2	UK		6350	
HL2.LAT.15.05.09.022	2015	2	UK	711	4989	
HL2.LAT.15.05.09.023	2015	2	UK	635	4536	21
HL2.LAT.15.05.09.024	2015	2	UK	533	3629	9
HL2.LAT.15.05.08.025	2015	2	UK	558	3628	16
HL2.LAT.15.05.??026	2015	2	UK	711	5443	38
HL2.LAT.15.05.10.027	2015	2	UK	635	5443	37
HL2.LAT.15.05.10.028	2015	2	UK	533	3175	11
HL2.LAT.15.05.10.029	2015	2	UK	711	5897	
HL2.LAT.15.05.09.030	2015	2	UK	533	2722	12
HL2.LAT.15.05.08.031	2015	2	UK	660	4536	17
HL2.LAT.15.05.11.032	2015	2	UK	615	3234	12
HL2.LAT.15.05.11.033	2015	2	UK	680	3234	16
HL2.LAT.15.04.22.034	2015	2	UK	710	4127	26
HL2.LAT.15.04.22.035	2015	2	M	555	1868	19
HL2.LAT.15.04.22.036	2015	2	UK	570	2540	18
HL2.LAT.15.04.22.037	2015	2	UK	580	2676	17
HL2.LAT.15.05.11.038	2015	2	UK	660	2776	13
HL2.LAT.15.05.11.039	2015	2	UK	665	2776	

Unique ID*	Year	Location**	Sex	Fork Length (mm)	Weight (g)	Age
HL2.LAT.15.04.13.040	2015	2	M	680	3243	19
HL2.LAT.15.04.22.041	2015	2	F	710	2902	
HL2.LAT.15.04.22.042	2015	2	UK	590	2132	12
HL2.LAT.15.04.22.043	2015	2	F	640	4036	
HL2.LAT.15.04.22.044	2015	2	UK	704	3800	19
HL2.LAT.15.04.22.045	2015	2	UK	650	3225	14
HL2.LAT.15.04.22.046	2015	2	UK	600	2326	
HL2.LAT.15.04.22.047	2015	2	UK	850	8300	39
HL2.LAT.15.04.26.048	2015	2	UK	715	3678	
HL2.LAT.15.04.26.049	2015	2	UK	760	4154	24
HL2.LAT.15.04.26.050	2015	2	UK	595	2767	20
HL2.LAT.15.04.22.051	2015	2	UK	610	2585	
HL2.LAT.15.04.22.052	2015	2	UK			
HL2.LAT.15.04.13.053	2015	2	UK	760	4146	14
HL2.LAT.15.04.17.100	2015	2	F	627	3800	31
HL2.LAT.15.04.17.101	2015	2	F	665	4000	17
HL2.LAT.15.04.15.102	2015	2	M	790	6000	22
HL2.LAT.15.04.15.103	2015	2	F	805	5600	19
HL2.LAT.15.04.15.104	2015	2	M	720	5400	18
HL2.LAT.15.04.17.105	2015	2	F	742	4900	36
HL2.LAT.15.04.18.106	2015	2	F	604	2800	40
HL2.LAT.15.04.18.107	2015	2	F	565	2800	11
HL2.LAT.15.04.19.108	2015	2	M	624	3400	9
HL2.LAT.15.04.15.109	2015	2	M	611	2250	16
HL2.LAT.15.04.14.110	2015	2	F	640	3000	
HL2.LAT.15.04.19.111	2015	2	F	605	2600	23
HL2.LAT.15.04.12.112	2015	2	M	595	2600	
HL2.LAT.15.04.12.113	2015	2	F	734	4800	11
HL2.LAT.15.04.15.114	2015	2	UK	711	4400	
HL2.LAT.15.04.17.115	2015	2	F	585	2700	14
HL2.LAT.15.04.12.116	2015	2	M	616	3400	14
HL2.LAT.15.04.17.117	2015	2	F	620	3600	16
HL2.LAT.15.04.17.118	2015	2	M	549	2800	16
HL2.LAT.15.04.10.119	2015	2	UK	724	5300	
HL2.LAT.15.04.10.120	2015	2	UK	640	3200	
HL2.LAT.15.04.15.121	2015	2	F	685	3800	18
HL2.LAT.15.04.10.122	2015	2	UK	880	8500	
HL2.LAT.15.04.10.123	2015	2	UK	660	3200	
HL2.LAT.15.04.15.124	2015	2	F	600	2600	
HL2.LAT.15.04.15.125	2015	2	F	690	4200	16
HL2.LAT.15.04.15.126	2015	2	M	773	5200	20
HL2.LAT.15.04.10.128	2015	2	M	870	7280	
HL2.LAT.15.04.14.129	2015	2	F	745	5250	
HL2.LAT.15.04.14.130	2015	2	M	545	1600	20
HL2.LAT.15.04.14.131	2015	2	F	735	3800	14

Unique ID*	Year	Location**	Sex	Fork Length (mm)	Weight (g)	Age
HL2.LAT.15.04.14.132	2015	2	M	600	2500	14
HL2.LAT.15.04.11.133	2015	2	F	827	6200	
HL2.LAT.15.04.10.134	2015	2	UK	700	4300	
HL2.LAT.15.04.09.135	2015	2	M	520	2400	14
HL2.LAT.15.04.11.136	2015	2	F	686	4800	
HL2.LAT.15.04.11.137	2015	2	F	760	4800	
HL2.LAT.15.04.11.138	2015	2	M	900	7400	25
HL2.LAT.15.04.??139	2015	2	F	745	4800	
SIT.LAT.14.03.29.001	2015	na	M	337	500	
HL2.LAT.15.04.15.140	2015	2	M	698	4900	29
HL2.LAT.15.05.15.141	2015	2	F	611	3200	
HL2.LAT.15.05.15.142	2015	2	M	641	3700	
HL2.LAT.15.05.03.143	2015	2	M	663	4000	
HL2.LAT.15.05.03.144	2015	2	M	619	3000	15
HL2.LAT.15.04.25.145	2015	2	F	663	5750	17
HL2.LAT.15.04.27.146	2015	2	M	636	3000	28
HL2.LAT.15.04.28.147	2015	2	F	628	4000	20
HL2.LAT.15.04.28.148	2015	2	F	557	2500	13
HL2.LAT.15.05.03.149	2015	2	F	775	7000	
HL2.LAT.15.05.02.150	2015	2	F	667	3000	12
HL2.LAT.15.05.02.151	2015	2	M	590	3000	
HL2.LAT.15.05.02.152	2015	2	F	559	3000	15
HL2.LAT.15.05.03.153	2015	2	M	623	4000	
HL2.LAT.15.05.03.154	2015	2	F	642	5500	18
HL2.LAT.15.05.03.155	2015	2	F	694	5000	14
HL2.LAT.15.05.01.156	2015	2	M	519	3500	14
HL2.LAT.15.05.01.157	2015	2	M	476	3000	18
HL2.LAT.15.05.01.158	2015	2	M	639	8000	15
HL2.LAT.15.05.01.159	2015	2	M	715	8000	12
HL2.LAT.15.05.01.160	2015	2	F	586	4500	
HL2.LAT.15.05.01.161	2015	2	M	632	6000	31
HL2.LAT.15.05.01.162	2015	2	M	680	7000	
HL2.LAT.15.05.09.163	2015	2	F	648	4700	14
HL3.LAT.15.05.08.164	2015	3	F	715	8000	13
HL2.LAT.15.05.03.165	2015	2	M	555	3000	14
HL2.LAT.15.05.09.166	2015	2	F	610	3700	26
HL2.LAT.15.05.09.167	2015	2	F	586	3000	38
HL2.LAT.15.05.09.168	2015	2	F	628	3600	28
HL2.LAT.15.05.09.169	2015	2	M	605	3400	32
HL2.LAT.15.05.09.171	2015	2	F	541	2500	29
HL2.LAT.15.05.09.172	2015	2	M	538	2700	35
HL2.LAT.15.05.09.173	2015	2	F	621	3600	26
HL2.LAT.15.05.06.174	2015	2	M	670	3800	17
HL2.LAT.15.05.09.175	2015	2	F	663	4600	13
HL2.LAT.15.05.09.176	2015	2	M	496	2500	17

Unique ID*	Year	Location**	Sex	Fork Length (mm)	Weight (g)	Age
HL2.LAT.15.05.06.177	2015	2	F	661	4200	20
HL2.LAT.15.05.06.178	2015	2	F	554	4000	21
HL2.LAT.15.05.06.179	2015	2	M	596	3900	26
HL2.LAT.15.05.06.180	2015	2	M	551	3000	10
HL2.LAT.15.05.09.181	2015	2	M	663	4000	18
HL2.LAT.15.05.17.182	2015	2	M	692	4500	
HL2.LAT.15.05.17.183	2015	2	F	681	4700	
HL3.LAT.15.05.16.184	2015	3	F	712	5700	26
HL2.LAT.15.05.09.185	2015	2	F	632	4000	15
HL2.LAT.15.05.09.186	2015	2	F	678	4000	20
HL1.LAT.15.????.187	2015	1	M	720	3095	17
HL1.LAT.15.????.188	2015	1	F	460	1075	
HL1.LAT.15.????.189	2015	1	M	570	1505	