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Population abundance, biological characteristics, and contribution to coastal mixed-stock fisheries of Dolly Varden (*Salvelinus malma malma*) from the Babbage River: 2010-2014

Colin P. Gallagher¹, Kimberly L. Howland¹, Robert Bajno¹, Stephen J. Sandstrom², and James D. Reist¹

¹Fisheries and Oceans Canada

Bracebridge, Ontario, P1L 1W9

501 University Crescent Winnipeg, Manitoba, R3T 2N6 ²Ontario Ministry of Natural Resources and Forestry 1350 High Falls Road



Foreword

This series documents the scientific basis for the evaluation of aquatic resources and ecosystems in Canada. As such, it addresses the issues of the day in the time frames required and the documents it contains are not intended as definitive statements on the subjects addressed but rather as progress reports on ongoing investigations.

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ABSTRACT

Anadromous northern form Dolly Varden (Salvelinus malma malma) from the Babbage River, Yukon Territory was assessed to evaluate population status and determine if the population was sustainably harvested. The methods employed between 2010 and 2014 to collect the information used for the assessment were: a multi-year mark-recapture study to generate abundance estimates, and biological and life history data; a Dual Frequency Identification Sonar (DIDSON) to estimate counts of fish and characterize migration pattern; and coastal harvest monitoring to collect reported harvest information and samples for a genetic mixed-stock fishery analysis to determine the contribution of the Babbage River population to fisheries along the Canadian Beaufort Sea coast. Estimates of abundance from 2010 to 2012 ranged between 5,861 and 6,553 while an estimate of 10,356 was observed in 2013. The total number of fish (regardless of species) enumerated moving in an upstream direction with the DIDSON was 6,531 while the estimated count of Dolly Varden of sizes comparable to those in the markrecapture study (standardized to ≥365 mm) ranged between 2,839 and 3,119. Biological information from the mark-recapture study revealed the presence of a wide range of sizes (range= 250-780 mm) that were bimodally distributed between spawning males and females. A high proportion of spawners (40.0-67.5 %) and greater incidences of skip spawning in males and repeat spawning in females was observed. Growth was not only higher in males compared to females but also higher for both sexes in recent years compared to the early 1990s. Genetic mixed-stock fishery analyses revealed that <450 fish from the Babbage River population were harvested annually between 2011 and 2014 along the coast, with the majority of the harvest occurring at Shingle Point. The population experiences an annual harvest rate <6%. Our results indicated the population is currently stable and was sustainably harvested over the period investigated.

INTRODUCTION

The northern form Dolly Varden (Salvelinus malma malma) from the Babbage River is one of multiple populations distributed along the Yukon and Alaska North Slope (McCart 1980). Situated in the Yukon Territory portion of the Inuvialuit Settlement Region, the Babbage River flows between the British and Barn mountains and enters the Beaufort Sea in Phillips Bay (Figure 1). The eastern shoreline of the Babbage River is also the eastern border of Ivvavik National Park (Canada 1984). Fish Hole Creek and Wood Creek are the spawning tributaries for the anadromous and stream-resident life history forms of the Babbage River stock (Figure 1) (Bain 1974). The Babbage River population exhibits partial migration, where one component of the population undertakes annual anadromous migrations (female biased) while the other component, which is almost exclusively males, remains in freshwater (i.e., stream-resident) and reproduces with anadromous females using a 'sneaker' tactic (Bain 1974, Hendry et al. 2004). There is also a population of non-anadromous Dolly Varden isolated above the falls on the Babbage River (Figure 1) that are impassable to upstream movement of fish (Bain 1974), with no indication of gene flow to Dolly Varden from Fish Hole Creek (Harris et al. 2015). The spawning and overwintering habitats for Dolly Varden are associated with perennial groundwater springs that maintain year-round open river reaches and produce an aufeis field further downstream during the winter. The aufeis field is believed to delineate the lower extent of overwintering habitat. In Fish Hole and Wood creeks, groundwater flowing at a constant temperature (~4°C) maintains approximately 0.0073 km² of open water during the winter (Mochnacz et al. 2010).

Anadromous Dolly Varden from the Babbage River is an important cultural and subsistence resource for the Inuvialuit from Aklavik, NT and Inupiat from Kaktovik, Alaska (Papik et al. 2003, Pedersen and Linn 2005). The population is harvested in coastal mixed-stock fisheries during the summer in Canada and Alaska (at least as far west as Kaktovik; Krueger et al. 1999). In Canada the most important locations where the Babbage River stock is harvested are Shingle Point and Herschel Island (Thetis Bay) during the summer (Figure 1). Inuvialuit can also harvest directly at the spawning and overwintering area (locally described as 'Fish Hole') in early winter by sweeping pools with a gill net (Papik et al. 2003); however, there have been no reports of harvesting at this location over the past twenty years, due in part to the long distance harvesters from Aklavik are required to travel (M. Gruben, Aklavik HTC, pers. comm.).

The Babbage River stock was assessed in 1987 (Baker 1987; data from 1987) and in 2001 (DFO 2003; data from 1990-1992), with the latter concluding there was no indication of overexploitation. Declines in population abundance in the Big Fish River and Rat River stocks in combination with the limited volume of critical overwintering freshwater habitat resulted in the listing of northern form Dolly Varden in Canada as 'Special Concern' by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in 2010. Concomitantly, an Integrated Fisheries Management Plan (IFMP) was signed among the Gwich'in Renewable Resources Board, Fisheries Joint Management Committee, Fisheries and Oceans Canada, and Parks Canada Agency to guide the co-management of Dolly Varden in the western Arctic over the next five years (2010-2015). The implementation of the IFMP and any future evaluation by COSEWIC requires updated assessments, including for the Babbage River.

OBJECTIVES

Data collected from fishery independent (in the river system) and dependent (coastal locations) projects between 2010 and 2014 were used to assess the population status of anadromous Dolly Varden from the Babbage River, specifically:

- 1. Estimate population abundance in 2010, 2011, 2012, and 2013 based on a mark-recapture studies and compare with previous estimates;
- 2. Estimate counts of fish during the 2011 upstream migration from a Dual Frequency Identification Sonar (DIDSON);
- Summarize biological characteristics of the population from live-sampling conducted at the spawning and overwintering area in late September between 2010 and 2014 (length, sex, maturity/ reproductive status, and growth), and compare with data collected at the same location using similar methods in 1987;
- 4. Examine the contribution of the Babbage River to mixed-stock-fisheries along the Canadian Beaufort Sea coast based on results from genetic mixed-stock analyses of samples collected between 2011 and 2014:
- 5. Estimate the annual harvest rate of the stock in Canada between 2011 and 2014.

METHODS

CAPTURE AND SAMPLING OF FISH AT THE SPAWNING AND OVERWINTERING AREA

The capture and live-sampling of Dolly Varden in Fish Hole Creek and Wood Creek was consistent with the methods described by Sandstrom et al. (2009). The same net was used in the seining conducted to assess stocks from the Big Fish (Gallagher et al. 2013) and Rat (Sandstrom et al. 2009) rivers. Seining was conducted annually between 2010 and 2014 at the end of September to collect biological information and attach t-bar tags to a maximum of 500 fish for a mark-recapture study (Appendix 1).

Seining was conducted in the area between the start of an aufeis field in Fish Hole Creek (N 68.61331, W 138.73040) to approximately 1.5 kilometers upstream in Wood Creek (N 68.59696, W 138.73340) (Figure 1). However, only the lower reach of the spawning area was seined in 2013 as poor weather prevented sampling further upstream in a manner consistent with other years (Seining zone 1 in Figure 1). The seine was used to sweep a series of pools in the river where fish were congregated. Each fish captured in the net was identified to species and measured for fork length (± 5 mm). The life history type of each fish was visually identified using external criteria (i.e., stream resident, pre-smolt juvenile (also termed 'freshwater juvenile'), and anadromous (COSEWIC 2010)) and, for anadromous fish, the reproductive status was recorded ('non-spawner' or 'spawner') along with the sex if it was in spawning condition (see DFO 2014 for images). Non-spawners (also termed 'silvers') are either immature smolts or non-spawning (i.e., resting) adults that are silver in colour. Each anadromous fish was examined for the presence of a tag near the base of the dorsal fin and, if present, the tag number and colour were recorded. If a Dolly Varden had no tag and was >300 mm in length, it was tagged with an individually coded plastic t-bar tag at the base of the dorsal fin and then released back into the water. Dates when seining occurred in September were: 19, 24, and 26 in 2010; 19 and 28 in 2011; 21 and 22 in 2012; 23 in 2013; and 23 and 25 in 2014.

Data from the seining conducted between September 22 and 25, 1987 at the spawning and overwintering area were compared to data from recent years to evaluate any changes in population demographics (Appendix 1). Although data were collected using a seine net in 1986 and 1991, the sample size was too low (Gallagher et al. 2012) for meaningful comparison. Bain (1974) reported seining at this location at the end of September in 1972 but the raw data were not available for comparisons.

POPULATION ABUNDANCE

Population abundance estimates were generated by capturing and tagging a sample of Dolly Varden in the fall (2010, 2011, 2012, and 2013) at the spawning and overwintering area and sampling the following fall (i.e., in the next year) at the same general location to record the number of marked and unmarked fish encountered. The model used to estimate the population size was based on single-year censuses (Petersen model; see Seber 1982).

Population abundances from 1990 and 1991 were also estimated based on the tagging (1990 and 1991) and recapture (1991 and 1992, respectively) of fish using a weir erected in the Babbage River during the upstream migration in 1990, 1991 and 1992 (Sandstrom et al. 1997).

The Chapman modification of the Petersen equation was used to estimate population size (N):

$$N = \frac{(M+1)(C+1)}{(R+1)} - 1$$

where M= number of individuals marked, C= total number of individuals captured while trying to collect marked fish, and R= number of individuals marked that were recaptured (see also Table 1). The uncertainty of N is determined by calculating the variance (Var):

$$Var = \frac{(M+1)(C+1)(M-R)(C-R)}{(R+1)^2(R+2)} - 1$$

Seber (1982) recommends as a guide that the Poisson distribution should be used to calculate 95% confidence intervals (C.I.) if R/C< 0.1 and R/M< 0.1, which applies in this study. To calculate the intervals, coefficients were determined, based on the frequency of R, according to Seber (1982) and applied to the product of MC to determine the lower and upper limits. In the context of the mark-recapture studies on Dolly Varden, some of the assumptions were not met (e.g., no recruitment into the population and tag loss) and corrections were made (see Sandstrom et al. 2009, Gallagher et al. 2011). To control for the issue of recruitment of unmarked individuals into the component of the population being evaluated (i.e., due to growth between sampling 1 (capture) and sampling 2 (recapture) events), the lower end of the size range was adjusted (up) using the established growth relationship observed from tag recaptures to exclude those fish in the recapture that would not have been a size eligible (i.e., too small) for tagging in sampling 1.

Additionally, for the earlier estimates based on the tagging from the weir project from the 1990s, while only a sub-sample of Dolly Varden captured in the weir were tagged, all fish that were enumerated in the recapture event were checked for the presence of a tag. However, not all fish were measured for length in the recapture event, therefore, to estimate the abundance of Dolly Varden greater than a certain size, the proportion of fish ≥ the predetermined size was multiplied by the total number encountered in the weir to estimate the total number examined in the recapture event. Abundance estimates between 2010 and 2013 were generated for the minimum size of fish that were tagged (~310 mm) for those ≥365 mm to better compare estimates among recent years and earlier years (1990s) (i.e., a consistent size standard).

COUNTS OF MIGRATING FISH USING DUAL FREQUENCY IDENTIFICATION SONAR (DIDSON)

The DIDSON (Sound Metrics Corporation, Lake Forest Park, Washington) is a multibeam sonar that transmits pulses of sound and converts the returning echo into digital images. Pulses are emitted at a high frequency thereby providing improved resolution over a relatively long distance compared to optical devices, particularly in turbid or low-light conditions. The DIDSON can

record high resolution images at a fast continuous rate which provide near-video top-down imaging of objects in the water.

The standard model of the DIDSON was used to enumerate the upstream movements of fish. The model operates at a frequency of 1.1 MHz and constructs a single image by transmitting a pulse of 48 beams of sound at a rate of between 4 and 21 per second. The DIDSON can capture an image from 0.83 m away from the device to a distance ranging between 5 and 40 m.

A site was chosen on the Babbage River (N 68.87699, W 138.62563) (Figure 1) which consisted of a gravel bar accessible by a Twin Otter plane where the river was no wider than the maximum distance the DIDSON could ensonify. Daily measurements of river width and depth were taken. Width was recorded using a range finder while depth was measured from a piece of rebar staked in the river. The camera was deployed from a gradually sloping cobble shoreline with no obstructions in the river channel that would result in acoustic shadowing effects. A HOBO Tidbit v2 temperature logger was used to record air and water temperature at 15 minutes intervals over the duration of the study.

The camera was attached to a metal mount and secured with rock-filled polypropylene woven bags to keep the camera stationary in the water while recording. The camera was placed nine meters from shore to be completely submerged in the water and positioned perpendicular to shore to ensonify to the other side of the river. A length of wire fencing (1.2 m high, 25.4 mm mesh) was erected immediately downstream of the camera and perpendicular from shore to a distance of just over 10 m on both sides of the river to funnel fish away from the shore and allow for a relatively small window length for the DIDSON which improved the image quality of fish. The positioning of the camera and fencing prevented non-detection of fish that would have passed too close to (<0.83 m) or behind the camera.

The DIDSON was set to record at a frame rate of six per second with a window start of 0.83 m and a window length of 20.84 m. A small tent was placed near the shore which housed a plastic storage box containing the DIDSON components (e.g., top box) and laptop computer. The camera, computer and external hard drives were powered using a 2000 watt generator. All data files were logged directly to a large capacity external hard drive which was backed-up daily to a separate hard drive without disruption to the real-time recording. Data were examined in the field using a second laptop computer to confirm the presence of fish and obtain a preliminary indication of the number of fish passing.

The DIDSON data files were processed at DFO Freshwater Institute using a desktop computer to enumerate, determine the direction of movement, and measure fish that passed in front of the camera. The DIDSON software V5.25.05 (Sound Metrics Corporation) was used to create an echogram of every hour-long file with background subtraction. The entire echogram was visually inspected for fish and each fish that was detected was enumerated. Measurements were only done in frames where fish were displaying their full length and positioned, as much as possible, in the centre of the field of view.

Species identification using the DIDSON data was not possible because Dolly Varden have a similar body shape to Arctic Grayling (*Thymallus arcticus*) which commonly occur in the river. To estimate the number of Arctic Grayling that may have been enumerated, data from weir studies conducted to enumerate Dolly Varden in 1990 and 1992 where the number of grayling was also recorded were used to estimate the proportion that could have contributed to the counts from the DIDSON. Arctic Grayling accounted for 50% and 32% of the total catch in 1990 (captured between July 20 and September 24) and 1992 (captured between August 1 and 22), respectively. To correct the DIDSON counts, the 32% value from 1992 (chosen because it was the most recent year with this type of information) was subtracted from the number of fish that were immeasurable and from all fish <420 mm. The <420 mm threshold was chosen because

length information of Arctic Grayling from the Babbage River indicate maximal lengths of approximately this size (Gallagher, unpubl. data). The number and abundance of other species with a body shape similar to Dolly Varden and Arctic Grayling are presumably rare and their possible effects on the counts of fish were considered negligible.

Counts of fish were totaled and also divided among categories of size to improve the accuracy of the estimated count of Dolly Varden: 1) ≥420 mm (size of fish that would only be Dolly Varden; no correction applied), 2) ≥250 and <420 mm (size of fish considered to be a mixture of Arctic Grayling and anadromous Dolly Varden; 32% correction applied), and 3) ≥365 and <420 mm (standardized size of fish to compare with estimates of abundance from mark-recapture study; 32% correction applied). The estimated total count of Dolly Varden was calculated by taking the sum of fish ≥420 mm and the corrected values. The upstream counts were summed and plotted against date to illustrate the upstream migration pattern and compare with similar data collected with the weir in 1990, 1991, 1992 (Sandstrom et al. 1997).

BIOLOGICAL INFORMATION

Differences in length among males and females in spawning condition, and non-spawners captured in the seine net were evaluated with a Mann-Whitney U test due to the high number of instances of non-parametric distribution of log10 transformed length data among years (all non-spawners were non-parametric; female and male spawners were non-parametric in half and one third, respectively, of the sampling years). Differences among years were examined by comparing pairs of sampling years.

Annual growth was examined using the length data from the recapture of tagged fish between 2011 and 2014 in the seining program at Fish Hole Creek that were at-large for one year. Samples where length at capture was greater than length at recapture (n= 2) were omitted. Growth was plotted against length at capture and a linear regression was fitted. Additionally, length at capture was also plotted against length at recapture to illustrate the annual change in length. Analysis of covariance was used to examine for differences in growth between sexes using length at initial capture as a covariate (all years combined and regardless of reproductive status from one year to the next). Effects of the change in annual reproductive status on growth were examined separately for females and males; however, due to the low sample size among categories no statistical tests were conducted. Inter-annual differences in growth were not statistically tested due to low sample sizes among years (grand total in 2011 n= 12; 2012 n= 18; 2013 n= 15, 2014 n= 18). Growth of male and female fish tagged from 2010-2014 (seine) were compared to those tagged in 1990-1992 (weir).

Male and female Dolly Varden tagged as spawners and recaptured in the following year while seining at the spawning and overwintering area were used to determine the proportion of fish that spawned annually or skipped spawned (note: samples with discrepancies in length [length at capture > recapture] were included [n= 2] assuming reproductive status was properly recorded upon recapture).

HARVEST MONITORING OF DOLLY VARDEN ALONG THE BEAUFORT SEA COAST

Between 2011 and 2014, Dolly Varden were harvested from Herschel Island, Ptarmigan Bay, King Point, Sabine Point, Shingle Point, and near the mouth of Running River (Figure 1). The total harvest of Dolly Varden at Herschel Island has been consistently monitored during the summer by the Rangers working at Herschel Island Territorial Park since 1988. In 2011, the monitoring program was enhanced with the annual collection of catch-effort and biological

information (otoliths, length, weight, sex and maturity) including tissue samples for genetic mixed-stock fishery analysis.

A sampling program for Dolly Varden was implemented in 2011 at Ptarmigan Bay with the participation of a harvester that has been fishing at the location for many years. The harvester was instructed to sample his subsistence catch and record catch-effort and biological information (otoliths, length, weight, sex and maturity) and collect tissue samples for genetics. Data were collected in 2011, although poor weather conditions either prevented or severely impeded fishing in subsequent years.

In 2011, a comprehensive annual harvest monitoring program was initiated at Shingle Point/Running River. A monitor from the community of Aklavik, hired through the Aklavik Hunters and Trappers Committee (HTC), worked in cooperation with DFO staff member(s) over the majority of the fishing season to collect harvest totals along with catch-effort, biological, and tag return information from Dolly Varden. Biological sampling included length, weight, sex and maturity, and collection of otoliths, muscle tissue, stomachs for diet analysis, and tissue for genetic mixed-stock fishery analysis. The pair also worked in partnership to collect data with another local monitor and DFO staff member whose primary focus was to collect marine benthic invertebrates, water samples, and biological data and tissue samples from various fish species, for an ecosystem study of the Beaufort Sea (Arctic Coastal Ecosystem Studies, ACES).

King and Sabine points are a relatively short distance by boat from Shingle Point (approximately 25 km and 13 km, respectively, west) and people camping at Shingle Point periodically go to either location to harvest fish. Between 2011 and 2014, the harvest monitors from Shingle Point recorded harvest information and subsampled Dolly Varden captured at King Point and Sabine Point.

GENETIC MIXED-STOCK FISHERY ANALYSES

Prior to mixed-stock analysis (MSA), genetic stock identification (GSI) was performed to delineate the genetic stock structure of anadromous Dolly Varden (see Harris et al. 2015). Success of MSA relies on a reasonable understanding of the genetic structure of fish stocks that contribute to the mixed-stock fishery (Utter and Ryman 1993). The accuracy and precision of contribution estimates to a mixed-fishery depends on a genetic baseline represented by all putative contributing unit-stocks and genetic markers capable of delineating differences between those stocks. Populations which contribute to the mixed-fishery, but have not been sampled and incorporated into the genetic baseline, may influence results and affect the accuracy of MSA. Samples from known Canadian anadromous stocks (Firth River drainage, Babbage River, Big Fish River, Rat River, and the Vittrekwa River) were used in the development of the genetic baseline using fifteen microsatellite DNA markers. Subsets of Dolly Varden samples from rivers on the North Slope of Alaska were also included for baseline development as they have been previously reported to contribute to Canadian coastal fishing sites (Krueger et al. 1999). Alaskan fish were assigned to three regional reporting groups (Alaska 1, Alaska 2, and Alaska 3) and categorized based on genetic data and geography with the exception of the Kongakut River (data not shown). Dolly Varden from the Kongakut River were pooled with the Canadian Firth drainage stock as GSI was unable to delineate sufficient genetic differences between these two groups (results not shown).

To assess the efficacy of the genetic baseline for MSA, simulated mixture and individual assignment analyses were employed using the 100% simulation and leave-one-out tests using the program ONCOR (Kalinowski et al. 2007). The 100% simulation evaluated the accuracy of the genetic baseline by simulating, using the method of Anderson et al. (2008), a fishery sample from which all individuals are taken from the same baseline stock. One thousand simulations

were done for each baseline stock. A mixture analysis reported the successes with which individuals were assigned back to their baseline sample. In the leave-one-out test, the genetic baseline was evaluated by how well individuals, which were removed from the baseline, were assigned back to their population of origin and to which population individuals were most often incorrectly assigned.

Two methods were used for mixture-stock analysis. A conditional maximum likelihood method implemented in ONCOR was used to estimate mixture proportions and assign individuals captured in the mixed fishery to a baseline population. For the mixture analysis, 95% confidence intervals were reported by bootstrapping 1000 times. The second approach used a Bayesian mixture model as implemented in the program BAYES (Pella and Masuda 2001). In this analysis, stock compositions estimates were generated using nine 10,000 iteration Markov Chain Monte Carlo (MCMC) simulations. For eight of the nine MCMC chains, the initial proportion values were set to 0.86 for a particular population, with that population changing for each chain. For the remaining seven stocks, proportion values of 0.14 were equally distributed. For the remaining MCMC chain, initial proportion values were equally distributed across all eight baseline Dolly Varden stocks. Convergence of chains was assessed with the Gelman and Rubin shrink factor (Gelman and Rubin 1992). Calculation of stock composition was accomplished by combining the last 1000 iterations of each chain.

Fifteen microsatellite DNA markers were assayed from tissue samples collected between 2011 and 2014 from Herschel Island (n= 420), Ptarmigan Bay (n= 87), King and Sabine points (n= 118), and Shingle Point (n= 889).

The harvest rate was calculated by dividing the estimated total number of Dolly Varden from Babbage River harvested by the estimated population abundance in the previous year.

RESULTS

POPULATION ABUNDANCE

Estimates of abundance between 2010 and 2012 were relatively similar and ranged between 5,861 (95% C.I.= 3,967-10,799) and 6,553 (95% C.I.= 4,005-13,315) char (Table 1, Figure 2), while a higher estimate of 10,356 (95% C.I.= 6,685-20,329) was observed in 2013. The estimates of abundance from 1990 and 1991 were considerably different from each other and varied between 10,925 and 18,203, respectively. Compared to the 1991 abundance estimate, the confidence intervals of estimates between 2010 and 2012 were lower, while the estimate for 2013 was relatively similar (Table 1, Figure 2).

COUNTS OF MIGRATING FISH USING DUAL FREQUENCY IDENTIFICATION SONAR (DIDSON)

The DIDSON sonar was deployed between July 22 (17:15) and September 11 (9:45), 2011. The sonar did not record video for 63.25 hours (5.2% of the total time) due to technical issues with the computer (mainly at the end of August / early September). The total number of fish that were enumerated moving in an upstream direction and measured was 6,531 (Table 2). The number of Dolly Varden ≥420 mm was 2,133 while the estimated counts of those ≥250 mm ranged between 4,050 and 5,030. The count of Dolly Varden that would be comparable to the 2011 mark-recapture abundance estimate (≥365 mm) ranged between 2,839 and 3,119 (Table 2), which was smaller than the lower 95% confidence interval (3,967) generated from the Petersen estimate (Table 1).

Initially, only a small number (<30) of fish were enumerated daily with the camera, however, the number quickly increased to >200 on July 31 with relatively large number of daily totals (between 100 and 453) consistently observed until August 21 (Figure 3). The daily totals decreased thereafter with only ≤10 fish per day detected in the last three days of the sonar's deployment. The length frequency distribution of fish moving upstream was unimodal in shape and distributed primarily among sizes between 300 and 500 mm (mode= 350 mm) (Figure 4). River conditions over the duration of the study did not negatively affect the deployment of the DIDSON camera. Stream width mainly ranged between 37 and 41 m while changes in the depth of the river were typically <5 cm (Figure 5A). Two relatively high-water events were observed in the third week of August and at the end of the study. Water temperature, while demonstrating a diel pattern, peaked at 18.9 °C on August 5 and decreased steadily to 4.7 °C by September 11 (Figure 5B).

BIOLOGICAL INFORMATION

Length

Although females and males appear to have similar minimum size-at-maturity, 365 mm and 335 mm, respectively, both exhibited different patterns in their length frequency distributions. Females in spawning condition ranged between 365 mm and 650 mm and were abundant between 450 mm and 550 mm in length (Figure 6). Conversely, anadromous male spawners were larger in size than female spawners (Mann-Whitney U= 156030, p< 0.001), attaining up to 780 mm in length, and demonstrating a wider and generally more platykurtotic size distribution with a higher proportion of larger sizes (≥575 mm). Non-spawners were primarily distributed among sizes ≤475 mm, suggesting that most of these were juveniles while larger ones (≥550 mm) were presumed to be resting adults. Non-spawners attained similar sizes to male spawners while in some cases (with the exception of 2012) both shared similar length frequency distribution among sizes ≥600 mm (Figure 6). Non-spawners were smaller than female (U= 256972, p< 0.001) and male spawners (U= 148268, p< 0.001).

Although no considerable difference was observed in the length structure of fish seined at the spawning and overwintering area between 1987 and 2010-2014, a higher proportion of fish ≥600 mm was evident for 2010-2014 (mean among years= 9.7%) compared to 1987 (5.9%) (Table 3, Figure 6, Appendix 2). The median length of female spawners has remained relatively consistent among years as differences between the highest and lowest medians were only 55 mm (Figure 7). This pattern was also evident for male spawners where the difference between the highest and lowest median value was 100 mm (80 mm if 2013 was excluded given that sampling may have been biased towards smaller-sized individuals). Similarly, non-spawners exhibited relatively small median differences (68 mm) over time (Table 3, Figure 7, Appendix 2).

Growth

The annual growth of Dolly Varden from the Babbage River was estimated for fish between 350 and 670 mm in length based on 63 recaptures between 2011 and 2014 (n= 27 females, n= 30 males, and n= 6 sex unknown) (Figure 8). The annual change in length from one year to the next was described with the linear equation:

Length
$$(mm)_{year\ 2} = -0.05 \times Length\ (mm)_{year\ 1} + 63.84$$

Males demonstrated a higher rate of growth compared to females, regardless of reproductive status from one year to the next (consecutive-year spawner and non-spawner, or an annual change from non-spawner to spawner and vice versa) (slope F= 9.8; d.f.= 1, 54; p= 0.003.; intercept F= 26.5; d.f.= 1, 54; p< 0.001) (Figure 9). Consecutive-year spawning occurred over a

wide range of sizes (360-570 mm length at first capture) in males. Males captured as non-spawners and recaptured the following year as spawners demonstrated a wide range of sizes (380-650 mm); however, these exhibited a higher rate of growth compared to consecutive-year spawners (Figure 10). Males resting in the year following spawning were mainly prevalent among larger sizes (~>600 mm) and demonstrated a wide range in growth (Figure 10). Similar to males, females spawning in consecutive-years exhibited a wide size range (430-560 mm); however, unlike males, females that changed from non-spawner to spawner were more narrowly distributed in size (≤470 mm) (Figure 11).

When the growth from 2010-2014 was compared to 1990-1992, regardless of annual change in reproductive status from one year to the next, the 2010-2014 growth was significantly higher for both females (slope F=10.7; d.f.=1, 97; p=0.001; intercept F=55.5; d.f.=1, 97; p<0.001) and males (slope F=19.1; d.f.=1, 125; p<0.001; intercept F=62.2, d.f.=1, 125; p<0.001) (Figure 12). For example, a 600 mm male in 1990-1992 grew on average 16 mm in one year while in 2010-2014 growth had more than doubled to 38 mm. A female 550 mm in length in 1990-1992 and 2010-2014 was expected to grow 10 and 21 mm, respectively in one year.

Annual and skip spawning, and proportion of non-spawners and spawners

Based on 41 samples (n = 24 females and n = 17 males), 92% of females and 59% of males tagged as spawners were recaptured in spawning condition the following year (Table 4). Males were five times more likely to skip spawning in the following year (41%) compared to females (8%). Between 2010 and 2014, the proportion of non-spawners varied between 32.5 and 60% (Table 5). Female spawners varied between 24.5 and 45.7 % and in most years were 1.5 to 2 times more abundant than male spawners with the latter accounting for between 14.2 and 30.3% of the sample (Table 5). Fish in spawning condition accounted for more than half of the anadromous sample observed in 2011, 2012 and 2014, and approximately 40% in other years. Freshwater juveniles were captured in most years, albeit in small numbers (n \leq 4). The proportions of non-spawners, and male and female spawners captured in 1987 did not differ substantially compared to 2010-2013 (Table 5).

GENETIC MIXED-STOCK FISHERY ANALYSES AND HARVEST ESTIMATES

The genetic baseline was suitable for MSA based on the current knowledge of contributing Canadian Dolly Varden unit-stocks to the North Slope coastal fishery. Performance of the baseline using the 100% simulation test in ONCOR indicated that accuracy of the genetic baseline was high and ranged from 95.9% to 100.0% (mean 99.2%). Accuracy of the individual-based assignment of the leave-one-out test in ONCOR ranged from 83.3% to 100% (mean 95.2). The largest misidentification in the individual assignments was from individuals from one of the Alaskan reporting groups (Alaska 2) to the Firth drainage/ Kongakut reporting group (12.1%). Incorrect assignments ranged from 0% to 5.1% for the remaining baseline stocks. Individuals were most commonly incorrectly assigned to Alaska 2 and the Firth drainage/ Kongakut reporting groups. A large majority (95.4%) of individuals were correctly assigned to the Babbage River with 3.7% incorrectly assigned to the Firth drainage/ Kongakut reporting group.

Both conditional maximum likelihood and Bayesian mixture methods produced similar results during the mixed-stock analyses (Table 6). Bayesian methods have been shown to more accurately estimate the stock composition of known mixture samples than do conditional maximum likelihood methods (Griffiths et al. 2010; Bradbury et al. 2015). Therefore, the Bayesian methods were used for fishery harvest calculations.

The genetic MSA revealed that Dolly Varden from the Babbage River was harvested at all known harvesting locations along the Canadian Beaufort Sea coast during the summers between 2011 and 2014 although data for Ptarmigan Bay was only available for 2011 (Table 7). Among years, the Babbage River stock comprised between 2 and 15% of the total Dolly Varden harvest at Herschel Island. The stock had similar contributions at Ptarmigan Bay (9%) and Herschel Island (7%) in 2011 which are relatively close in distance to one another. The combined annual harvest of Dolly Varden from the Babbage River at Herschel Island and Ptarmigan Bay was estimated to be <30 fish. Although the total number of fish harvested at King Point/ Sabine Point was low (range= 16 - 66), the population from the Babbage River consistently accounted for a high (>85% in all years except 2014) proportion of the total Dolly Varden catch (Table 7). Shingle Point was the location where most of the Dolly Varden were harvested along the coast (except 2013) in a given year. The contribution of the Babbage River stock to the annual harvests at Shingle Point ranged considerably, from a low of 30% (34 fish harvested in 2013) to a high of 89% (367 harvested in 2012) (Table 7). The contribution of fish from the Babbage River to all coastal Dolly Varden fisheries in Canada ranged between 23% (n= 77 fish) in 2013 and 73% (n= 437 fish) in 2012 (Table 7).

The estimated annual harvest rate of the population between 2011 and 2014 ranged between 1 and 5.9% using the abundance of fish ≥310 mm.

DISCUSSION

POPULATION ABUNDANCEThe population abundance among recent sampling years appeared to be stable between 2010 and 2012 (~6,200) although a dramatic increase was observed in 2013 (10,356 fish). It is acknowledged that the high number of smaller-sized (<450 mm) fish tagged in 2013 and high number of larger-size fish (>450 mm) examined for tags in 2014 (Figure 3) likely violates the equal catchability assumption of the Petersen model. Furthermore, the assumption of a closed population may be violated as Dolly Varden are known to move between the Babbage and Firth rivers to overwinter based on genetic (Harris et al. 2015) and tag return data (i.e., a 300 mm non-spawner tagged in Fish Hole Creek in 2011 was recaptured as a 494 mm female spawner in Joe Creek in 2014). However, the degree of gene flow is relatively low between Firth River/Joe Creek and Babbage River (~0.03%; the probability that a given individual migrated during the previous generation; Harris et al. 2015) which may reduce the level of error produced by the violation. Additional sampling years are required to confirm if abundance is highly variable or is increasing.

The population estimates from the 1990s provided the earliest abundance data for the Babbage River stock. The mark-recapture studies between decades shared similarities where tagged fish were allowed to randomly mix with untagged fish for one year. Further, the majority of tags were presumably available for recapture (excluding loss either due to tag loss, and fishing and natural mortality), and the majority of the population was presumably available for sampling. However, any interpretation of a decline in population abundance since the early 1990s should be treated cautiously due to the different methods used (e.g., sampling location, seasonal timing, and sampling gear) for capture and recapture of tagged fish, and the lack of abundance information between decades that would have provided greater confidence in assessing trends. Moving forward, open population models (e.g., Cormack-Jolly-Seber, Pradel, and Popan) should be explored to overcome the restrictions imposed by the assumptions of a closed population. The Petersen model was used to be consistent with previous mark-recapture studies of anadromous Dolly Varden in the Western Arctic (e.g., Sandstrom et al. 2009).

DIDSON

The upstream migration of fish in the Babbage River occurred over the entire duration of the seven week deployment of the camera without any obvious impediment to movement, unlike the incidents of high water observed in the Big Fish River which appeared to negatively affect migration (Gallagher et al. 2013). While an unknown number of fish were missed before and after the DIDSON was deployed, it was assumed that most fish counted were anadromous Dolly Varden and that the majority of the run was enumerated. The pattern of daily counts generally demonstrated a bell shaped distribution where a relatively low number of fish was initially detected followed by a dramatic increase sustained over several weeks that was followed by a tapered decline in daily counts. This pattern was consistent with earlier weir studies conducted on the Babbage River apart from the bimodal distribution observed in 1990 (Figure 3; Sandstrom et al. 1997). There was a three week period in 2011 where daily counts were consistently >100 fish per day (Jul 30-Aug 21) which contrasts with the data from the early 1990s where these relatively high daily numbers started later and persisted either for a similar. shorter or longer duration (~4 weeks, Aug. 4-Sep. 1, 1990; ~2.5 weeks, Aug. 13-Sep. 1, 1991; 3 weeks, Aug. 8 - Aug. 28, 1992). Although it is possible Dolly Varden from the Babbage River currently undertake an earlier return migration relative to the 1990s, additional years of data would be required to more confidently support this interpretation.

Seasonally earlier migrations in salmonines have been linked to effects of climate change such as increasing water temperature (Juanes et al. 2004, Quinn et al. 2016). The region of the Babbage River has recently experienced increased air and sea surface temperatures, higher levels of precipitation, and decreased sea ice concentration (Smith 2010, Wendler et al. 2014, Boisvert and Stroeve 2015, Babb et al. 2016). Upstream migratory patterns of Dolly Varden have been characterized as complex where timing can be more variable, protracted, and strongly influenced by local sea surface temperatures compared to Pacific salmon (Bond and Quinn 2013). Further investigation of the environmental influences on the migration phenology of Dolly Varden stocks along the North Slope would provide information not only useful to predict impacts on the species life history but could also inform co-management bodies on whether changes in migration may impact the timing of subsistence fisheries. Interestingly, maximum water temperature in the Babbage River was higher and occurred later in the summer of 2011 (~18 °C) compared to 1991 and 1992 (~14-16.5 °C) (Sandstrom et al. 1997). Additionally, maximum daily air temperatures ≥25 °C were more frequent in 2011 compared to the early 1990s (Sandstrom et al. 1997).

The length information from the DIDSON revealed that most (65.8%) of the fish measured in 2011 were smaller than the 420 mm cutoff where anything larger would be considered a Dolly Varden. Maximum sizes were similar to those observed from the seining (Figure 6) although further comparison between the DIDSON and seining in 2011 for fish ≥250 mm is limited due to the selectivity of the seine net and the bias introduced by the smaller-sized Arctic grayling recorded using the DIDSON. Comparing the length data between the DIDSON and weir (fish ≥250 mm) is also limited although modal peaks among larger-size Dolly Varden (~450-500 mm) evident in the weir sample were absent from the DIDSON data. Regardless, the presence of a wide range of sizes based on the DIDSON is consistent with the results from seining.

The estimated count of Dolly Varden ≥250 mm from the DIDSON (4,054-5,030) was higher than the enumeration from the weir (range= 1,281-3,631) in the 1990s. Interpreting this result as an increase in abundance is limited as the weir was inoperable due to high water on some of the days in each year which would result in an underestimate (Sandstrom et al. 1997). Additional uncertainty regarding trend is introduced by the results from the mark-recapture study which suggests a decreasing trend.

The disparity between the DIDSON count (2,839 - 3,119) and the 2011 mark-recapture abundance (5,861 (95% C.I.= 3,967-10,799)), where fewer fish were observed in the DIDSON count, is consistent with findings from a similar study on the Big Fish River stock (Gallagher et al. 2013). In the Big Fish River, the lower count was attributed to an incomplete census using the DIDSON. Although a similar argument can be made for the Babbage River, there were few days where the DIDSON was not operating and it is highly unlikely that a large number of fish were missed assuming the river width was properly ensonified. The reason for the discrepancy remains uncertain and is likely a result of methodological issues in either approach which warrants further investigation to increase accuracy and confidence in abundance estimates.

BIOLOGY

The Babbage River stock demonstrated a bimodal difference in size between spawning males and females likely due to the higher rate of growth in males. One possible reason for the difference in growth is the increased prevalence of skip spawning in males. Skip spawning allows for the allocation of energy towards growth rather than reproduction while other benefits include reduced mortality (Rideout and Tomkiewicz 2011). Size is advantageous for male anadromous Dolly Varden who invest heavily in secondary sexual characters to defend optimal spawning territory and females from other males. Preliminary data demonstrating the effects of skip and annual spawning on growth in males suggest that spawning in consecutive years resulted in a higher growth compared to those who skip spawning (Figure 10). Although this observation appears counterintuitive (i.e., investing in energetically costly reproduction should result in a tradeoff with growth, Dutil 1986), annual spawning was only detected in males between 360 and 570 mm while skip spawning was exclusively among large (≥595 mm) males apart from one smaller recapture (425 mm) (Figure 10). It would be expected that growth among smaller/ younger fish would be higher than larger ones regardless of annual reproductive strategy. Higher prevalence of skip spawning among larger-size fish in a salmonine population was also observed in Atlantic salmon (Salmo salar) by Jonsson et al. (1991) who attributed the strategy to the decreased ability of larger fish to metabolize stored energy for the purpose of growth and reproduction. Additionally, Dutil (1986) demonstrated that the largest/ oldest Arctic charr (S. alpinus) were unable to restore energy reserves after spawning to a level that would allow a fish to spawn again up to senescence. Currently, data is limited to infer consequence of skip spawning on growth in female Dolly Varden from the Babbage River stock.

The temporally stable presence of a wide range of sizes which includes large females (>550 mm) with high fecundity (Bain 1974) combined with the high proportion of spawners (40.0 - 67.5%) indicates the current level of fishing mortality is not resulting in recruitment overfishing. The higher proportion of spawning females in the population is attributed to the increased tendency of skip spawning in males and because the stock exhibits partial migration. The presence of a high proportion of spawners in the stock has been consistent among past studies that have either used seining (i.e., 1987) or other sampling gear (Bain 1974, Sandstrom et al. 1997). The high prevalence of spawners would presumably promote resilience for the population in the event of a decline assuming egg and juvenile survival were not negatively affected.

The significantly higher growth for both females and males ~>350 mm in 2010-2014 compared to 1990-1992 is possibly due to improved feeding opportunities in the Beaufort Sea. Dolly Varden captured along the Beaufort Sea coast feed primarily on amphipods, mysids and fish (McCart 1980) and have been characterized as occupying a higher trophic level (relative to other coastal fishes) and a broad ecological niche (Brewster et al. 2016). Other influences may include the increased water temperature for depths which are known to be predominantly occupied (0-5 m) by Dolly Varden in the marine environment (Courtney et al. 2016).

Additionally, the amount of time spent feeding at sea may have increased compared to the early 1990s. Although evidence from the DIDSON in 2011 indicates an earlier timing in return migration, the greater extent of ice loss in the spring in the Beaufort Sea (Stroeve et al. 2012) may result in an earlier timing of seaward migration. Improved fitness (e.g., condition factor) in Arctic charr has been linked to changes in environmental productivity and timing of sea ice clearance (Harwood et al. 2013). One important gap in our evaluation of growth is the lack of information for pre-smolt juveniles and resident fish which would provide information on changes in freshwater habitat.

GENETIC MIXED-STOCK FISHERY ANALYSES AND HARVEST

Subsistence and commercial fisheries targeting a fishery composed of a mixture of populations are generally spatially and temporally variable depending on species biology, environmental conditions, sampling processes, and fishing effort. The harvest of Dolly Varden along the Canadian Beaufort Sea coast varied among locations and across years. The variation is likely influenced by the manner in which subsistence fisheries are conducted (e.g., gear, timing, and effort) and environmental conditions that affect distribution of fish. Fishing at Herschel Island is done using gill nets with larger mesh sizes (~102 mm, stretched) while a smaller mesh (~89 mm, stretched) is utilized at Shingle Point where the fishery primarily targets Arctic Cisco (*Coregonus autumnalis*). Gill nets are deployed when sea (e.g., drifting ice, level of woody debris, and waves) and weather (e.g., wind speed and direction) conditions are considered ideal. Variability in fishing effort, and the timing and location of fishing activity and sample collection may cause discrepancies in composition over seasonal and annual timeframes resulting in non-representative sampling of the coastal run.

The high contribution of the Babbage River stock at Shingle Point and neighbouring King/ Sabine points underscores the importance of the population for the subsistence of harvesters from Aklavik. Interestingly, the low contribution of the Babbage stock at Shingle Point in 2013 corresponded with a low total harvest of Dolly Varden while years with high rates of contribution (all other years) were associated with higher total catches. Additional years of data collection are required to evaluate whether the Babbage River stock consistently contributes the most to the fishery at Shingle Point. Further investigations, which could include fishery independent genetic sampling and tagging/movement studies, could be conducted to determine whether there are any directional differences in marine dispersal given the large difference in contribution of the stock in near equidistant fisheries occurring west and east of the mouth of the river. The temporal variability seen in the contribution of Babbage River stock to coastal fisheries suggests that compositions of fisheries can change drastically.

The high level of genetic differentiation among Canadian Dolly Varden stocks (Harris et al, 2015) contributes to the accuracy of genetic analyses in estimating the composition of Canadian mixed-stock fisheries. However, the accuracy of MSA is reliant on a genetic baseline represented by all unit-stocks that contribute to the fishery. The MSA work identified here incorporates information from all currently known Canadian stocks but may not have included representatives of all potentially contributing anadromous Dolly Varden populations across the Alaskan North Slope. Although the effect of adding new Alaskan populations to the genetic baseline in the MSA may not have a significant influence on current contribution estimates, as indicated by the low contribution estimates from the three Alaskan reporting groups to the Canadian coastal fisheries (data not shown), it would be valuable to include Alaskan stocks in future work examining the coastal fisheries along the Beaufort Sea.

Furthermore, assessments of mixed-stock fisheries require a comprehensive understanding of contributing stocks to inform questions relating to migration patterns and fishing pressures. In the case of this transboundary fish, further investigations may be necessary to identify genetic

differences between fish from the Firth drainage and Kongakut River. The research by Harris et al. (2015) demonstrated the five Canadian anadromous Dolly Varden stocks are genetically different. Therefore, as new putative anadromous stocks are identified in Canada, they will need to be included in MSA to ensure accuracy of composition estimates and advice provided to fisheries managers and resource users. Ultimately, the subsistence harvest rate of the Babbage River stock is presumably low. The estimate reflects the rate of harvest in Canada but is not completely accurate due to the lack of contemporary information on the contribution of the Dolly Varden stock harvested in Alaskan subsistence fisheries.

CONCLUSION

Abundance estimates estimates, biological, and harvest information indicates that the population of anadromous Dolly Varden from the Babbage River is currently stable and is sustainably harvested. Abundance estimates ranged between 5,861 and 6,553 between 2010 and 2012 which suggests no dramatic changes among these years although additional years of mark-recapture are required to confirm if abundance is increasing as suggested by the estimate in 2013. Length data from the seining conducted during spawning indicated a consistent presence of a wide range of sizes for males and females in spawning condition as well as non-spawners. The high proportion of current-year spawners concomitant with a relatively high population estimate indicates no depletion in the spawning stock biomass. Genetic mixed-stock fishery analysis revealed that between 78 and 437 fish from the Babbage River stock were harvested annually from 2011-2014 along the coast with the majority being harvested at Shingle Point. Although the harvest rate is unknown primarily due to the uncertainty regarding the contribution of the stock to fisheries in Alaska, it was assumed to be in the proximity of 5% in most years, which, according to the IFMP, is considered low risk when a stock is healthy.

Assessment activities should be maintained to continue informing co-management partners and gain a better understanding of the extent of inter-annual variation, particularly for abundance estimates and contribution to mixed-stock fisheries. Continued coastal harvest monitoring and sampling is required as this is the only known source of fishing mortality for the stock which must be accounted in population assessments. Additional effort should be directed towards colleting harvest data and genetic samples from Alaskan coastal communities such as Kaktovik to evaluate the contemporary contribution of Canadian stock to Alaskan subsistence fisheries. Additionally, studies examining abiotic factors throughout the life history range of the Dolly Varden (freshwater and marine) which influence population productivity and life history are required to improve future population assessments and better predict the effects of climate change (Reist et al. 2006). This information and the improved understanding of stock assessments would be relevant for to the conservation of this species and ultimately the food security of the Inuvialuit.

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LITERATURE CITED

- Anderson, E., Waples, R.S., and Kalinowski, S.T. 2008. An improved method for estimating the accuracy of genetic stock identification. Can. J. Fish. Aquat. Sci. 65:1475–1486.
- Bain, L.H. 1974. Life histories and systematics of arctic char (*Salvelinus alpinus*, L.) in the Babbage River system, Yukon Territory. Canadian Arctic Gas Study Limited (Calgary), Biological Report Series 18. 156 p.
- Baker, R.F. 1987. Status report for Arctic charr stocks of the Rat, Big Fish, Babbage and Firth rivers of the Northwest Territories and Yukon North Slope. Unpubl. rep. prepared for the Department of Fisheries and Oceans, Winnipeg, Manitoba. 62 p.
- Babb, D.G., Galley, R.J., Barber, D.G., and Rysgaard, S. 2016. Physical processes contributing to an ice free Beaufort Sea during September 2012. J. Geophys. Res. Oceans 121: 267–283.
- Bradbury, I.R., Hamilton, L.C., Rafferty, S., Meerburg, D., Poole, R., Dempson, J.B., Robertson, M.J., Reddin, D.G., Bourret, V., Dionne, M., Chaput, G., Sheehan, T.F., King, T.L., Candy, J.R., and Bernatchez, L. 2015. Genetic evidence of local exploitation of Atlantic salmon in a coastal subsistence fishery in the Northwest Atlantic. Can. J. Fish. Aquat. Sci. 72: 83–95.
- Boisvert, L.N., and Stroeve, J.C. 2015. The Arctic is becoming warmer and wetter as revealed by the Atmospheric Infrared Sounder. Geophys. Res. Lett. 42: 4439–4446.
- Bond, M.H., and Quinn, T.P. 2013. Patterns and influences on Dolly Varden migratory timing in the Chignik Lakes, Alaska, and comparison of populations throughout the northeastern Pacific and Arctic oceans. Can. J. Fish. Aquat. Sci. 70: 655–665.
- Brewster, J.D., Giraldo, C., Swanson, H., Walkusz, W., Loewen, T.N., Reist, J.D., Stern, G.A., and Loseto, L.L. 2016. Ecological niche of coastal Beaufort Sea fishes defined by stable isotopes and fatty acids. Mar. Ecol. Prog. Ser. 559: 159–173.
- Canada. Department of Indian Affairs and Northern Development. 1984. Western Arctic Claim the Inuvialuit Final Agreement.
- COSEWIC. 2010. COSEWIC assessment and status report on the Dolly Varden *Salvelinus malma malma* (Western Arctic populations) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. 65 p.
- Courtney, M.B., Scanlon, B.S., Rikardsen, A.H., and Seitz, A.C. 2016. Marine behavior and dispersal of an important subsistence fish in Arctic Alaska, the Dolly Varden. Env. Biol. Fish. 99: 209–222.
- DFO. 2003. Babbage River Dolly Varden. DFO Sci. Stock Status Report D5-62 (2002).
- DFO. 2014. <u>Assessment of Dolly Varden (Salvelinus malma) from the Rat River, Northwest Territories, 2002-2007</u>. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2014/036.
- Dutil, J.D. 1986. Energetic constraints and spawning interval in the anadromous Arctic charr (Salvelinus alpinus). Copeia 4: 945–955.
- Gallagher, C.P., Roux, M.-J., Howland, K.L., and Tallman, R.F. 2011. Synthesis of biological and harvest information used to assess populations of northern form Dolly Varden (Salvelinus malma malma) in Canada. Part II: Big Fish River. DFO Can. Sci. Advis. Sec. Res. Doc. 2010/115. v + 45 p.

- Gallagher, C.P., Roux, M.-J., Howland, K.L., and Tallman, R.F. 2012. Synthesis of biological and harvest information used to assess populations of northern form Dolly Varden (Salvelinus malma malma) in Canada. Part III: Comparison among populations. DFO Can. Sci. Advis. Sec. Res. Doc. 2011/128. vi + 81 p.
- Gallagher, C.P., Howland, K.L., Harris, L.N., Bajno, R., Sandstrom, S., Loewen, T., and Reist, J. 2013. <u>Dolly Varden (Salvelinus malma malma) from the Big Fish River: abundance estimates, effective population size, biological characteristics, and contribution to the coastal mixed-stock fishery.</u> DFO Can. Sci. Advis. Sec. Res. Doc. 2013/059. v + 46 p.
- Gelman, A., and Rubin, D.B. 1992. Inference from iterative simulation using multiple sequences. Statistical Science. 7: 457–511.
- Griffiths, A.M., Machado-Schiaffino, G., Dillane, E., Coughlan, J., Horreo, J.L., Bowkett, A.E., Minting, P., Toms, S., Roche, W., Gargan, P. McGinnity, P., Cross, T., Bright, D., Garcia-Vazquez, E., and Stevens, J.R. 2010. Genetic stock identification of Atlantic salmon (*Salmo salar*) populations in the southern part of the European range. BMC Genetics 11: 31.
- Harris, L.N., Bajno, R., Gallagher, C.P., Koizumi, I., Johnson, L.K., Howland, K.L., Taylor, E.B., and Reist, J.D. 2015. Life-history characteristics and landscape attributes as drivers of genetic variation, gene flow, and fine-scale population structure in northern Dolly Varden (*Salvelinus malma malma*) in Canada. Can. J. Fish. Aquat. Sci. 72: 1477–1493.
- Harwood, L.A., Sandstrom, S.J., Papst, M.H., and Melling, H. 2013. Kuujua River Arctic char: monitoring stock trends using catches from an under-ice subsistence fishery, Victoria Island, Northwest Territories, Canada, 1991–2009. Arctic 66: 291–300.
- Hendry, A.P., Bohlin, T., Jonsson, B., and Berg, O.K. 2004. To sea or not to sea? Anadromy versus residency in salmonids. In Evolution illuminated: salmon and their relatives. Edited by A.P. Hendry and S.C. Stearns. Oxford University Press: Oxford. pp 92–125.
- Jonsson, N., Hansen, L.P., and Jonsson, B. 1991. Variation in age, size and repeat spawning of adult Atlantic salmon in relation to river discharge. J. Anim. Ecol. 60: 937–947.
- Juanes, F., Gephard, S., and Beland, K.F. 2004. Long-term changes in migration timing of adult Atlantic salmon (*Salmo salar*) at the southern edge of the species distribution. Can. J. Fish. Aquat. Sci. 61: 2392–2400.
- Kalinowski, S.T., Manlove, K.R., and Taper, M.L. 2007. ONCOR: software for genetic stock identification. Montana State University, Bozeman, MT.
- Krueger, C.C., Wilmot, R.L., and Everett, R.J. 1999. Stock origins of Dolly Varden collected from Beaufort Sea coastal sites of Arctic Alaska and Canada. Trans. Am. Fish. Soc. 128: 49-57.
- McCart, P.J. 1980. A review of the systematics and ecology of Arctic char, *Salvelinus alpinus*, in the Western Arctic. Can. Tech. Rep. Fish. Aquat. Sci. 935: vii + 89 p.
- Mochnacz, N.J., Schroeder, B.S., Sawatzky, C.D., and Reist, J.D. 2010. Assessment of northern Dolly Varden, *Salvelinus malma malma* (Walbaum, 1792), habitat in Canada. Can. Man. Rep. Fish. Aquat. Sci. 2926: vi + 48 p.
- Papik, R., Marschke, M. and Ayles, G.B. 2003. Inuvialuit traditional knowledge of fisheries in rivers west of the Mackenzie River in the Canadian Arctic. Canada/Inuvialuit Fisheries Joint Management Committee Report 2003-4. 20 p.
- Pedersen, S., and Linn, A. 2005. Kaktovik 2000-2001 subsistence fishery harvest assessment. Alaska Department of Fish and Game and Kaktovik Inupiat Corporation, Final Report for FIS Study 01-101, Fairbanks.

- Pella, J., and Masuda, M. 2001. Bayesian methods for analysis of stock mixtures from genetic markers. Fish. Bull., U.S. 99: 151–167.
- Quinn, T.P, McGinnity, P., and Reed, T.E. 2016. The paradox of "premature migration" by adult anadromous salmonid fishes: patterns and hypotheses Can. J. Fish. Aquat. Sci. 73: 1015–1030.
- Reist, J.D., Wrona, F.J., Prowse, T.D., Power, M., Dempson, J.B., King, J.R., and Beamish, R.J. 2006. An overview of effects of climate change on selected arctic freshwater and anadromous fishes. Ambio 35: 381–387.
- Rideout, R.M., and Tomkiewicz, J. 2011. Skipped spawning in fishes: more common than you might think. Mar. Coast. Fish. 3: 176–189.
- Sandstrom, S., Harwood, L., and Howland, K. 2009. Status of anadromous Dolly Varden char (*Salvelinus malma*) of the Rat River, Northwest Territories, as assessed through mark-recapture and live sampling at the spawning and overwintering site (1995-2007). Can. Tech. Rep. Fish. Aguat. Sci. 2842: vi + 68 p.
- Sandstrom, S.J., Lemieux, P.J., and Reist, J.D. 1997. Enumeration and biological data from the upstream migration of Dolly Varden charr (*Salvelinus malma*) (W.), from the Babbage River, Yukon north slope, 1990 to 1992. Can. Data Rep. Fish. Aquat. Sci. 1018: iv + 132 p.
- Seber, G.A.F. 1982. The Estimation of Animal Abundance and Related Parameters. 2nd Edition. Blackburn Press, Caldwell, New Jersey.
- Smith, M.A. 2010. Arctic Marine Synthesis: Atlas of the Chukchi and Beaufort Seas. Audubon Alaska and Oceana: Anchorage.
- Stroeve, J.C., Serreze, M.C., Holland, M.M., Kay, J.E., Malanik, J., and Barrett, A.P. 2012. The Arctic's rapidly shrinking sea ice cover: a research synthesis. Climatic. Change 110: 1005–1027.
- Utter, F., and Ryman, N. 1993. Genetic markers and mixed stock fisheries. Fisheries 18: 11–21.
- Wendler, G., Moore, B., and Galloway, K. 2014. Strong temperature increase and shrinking sea ice in Arctic Alaska. Open Atmosph. Sci. J. 8: 7–15.

Table 1. Calculations of the Petersen model used to estimate the population abundance and 95% confidence intervals (C.I.) (normal distribution 1991-92) (Poisson distribution 2010-14) of anadromous Dolly Varden from the Babbage River in 1991 and 1992, and between 2010 and 2013 for fish ≥ the minimum size tagged and ≥365 mm. Letters in right column are used in the Petersen model.

	1990	1991*	20	10	20	11	20	12	20	13	
Minimum fork length (mm) of tagged Dolly Varden included in recapture sample	365	365	310	365	300	365	315	365	310	365	
Estimated length (mm) of the smallest tagged fish the following year rounded to nearest 5 mm	420	420	360	410	350	410	360	410	360	410	
Recapture year	1991	1992	2011	2011	2012	2012	2013	2013	2014	2014	
Total catch > minimum size examined in recapture year	3,739	2,619	292	243	520	443	500	433	448	399	С
Number of tags observed in recapture event (following year)	75	123	13	13	18	18	15	15	18	15	R
Number of tags applied ¹	401	561	441	412	298	277	276	255	499	459	
Reported previous year tags captured in subsistence fishery			4	4	5	5	1	1	9	9	
Number of tags available for recapture ²	369	516	402	375	269	250	253	234	450	413	M
Abundance estimate	18,203	10,925	8,427	6,553	7,407	5,861	7,950	6,363	10,659	10,356	N
Lower 95% C.I.	14,197	9,056	5,151	4,005	5,010	3,967	5,037	4,030	7,227	6,685	
Upper 95% C.I.	22,227	12,795	17,127	13,315	13,636	10,799	15,318	12,256	19,673	20,329	
Percent of population tagged > minimum size	2.2	5.1	5.2	6.3	4.0	4.7	3.5	4.0	4.7	4.4	
Percent of tags observed in recaptured	20.3	23.8	3.2	3.5	6.7	7.2	5.9	6.4	4.0	3.6	

¹ tag colours: 2010= red, 2011= grey, 2012= terracotta, 2013= red; and to fish ≥minimum sized tagged; ² assumes an estimated 8% annual tag loss rate based on Sandstrom et al. 2009

^{*}another estimate was generated for 1991 in Sandstom et al. 1997 using Bailey's triple capture model

Table 2. Estimated counts of anadromous Dolly Varden from the Babbage River obtained using a dual frequency identification sonar (DIDSON) camera deployed between July 22 and September 11, 2011.

_	Directional r Upstream	movements Downstream	Total
Count of immeasurable fish ^a	66	19	47
Count of measured fish	6,465	279	6,186
Total count	6,531	298	6,233
Count of fish ≥420 mm in length. These would all be considered Dolly Varden.	2,212	79	2,133
Count of fish ≥250 mm in length (size of smoltification for Dolly Varden). The count would be a mixture of Dolly Varden and Arctic Grayling.	5,257	227	5,030
Count of fish ≥250 mm and <420 in length. The count would be a mixture of Dolly Varden and Arctic Grayling.	3,045	148	2,897
32% Arctic Grayling subtracted from count of fish ≥250 and ≤420 mm in length.	2,071	105	1,966
Number of Dolly Varden ≥250 mm in length (*2,071 + 2,212= 4,238).	4,238* - 5,257	184 - 227	4,054 - 5,030
Count of fish ≥365 mm in length.	3,246	127	3,119
Count of fish ≥365 mm and <420 in length. The count would be a mixture of Dolly Varden and Arctic Grayling.	1,034	48	986
32% Arctic Grayling subtracted from count of fish ≥365 and ≤420 mm in length [†] .	703	33	670
Number of Dolly Varden ≥365 mm in length ([‡] 703 + 2,212= 2,951).	2,951 [‡] - 3,246	112 - 127	2,839 - 3,119

^a immeasurable fish were not incorporated in the tabulation of fish above size thresholds because it is impossible to determine if they are above or below the threshold

Table 3. Mean (\pm 1 standard deviation), median, range, and sample size (n=) of fork length (mm) of anadromous Dolly Varden from the Babbage River identified as non-spawners, and female and male spawners captured at the spawning and overwintering area using a seine net in late September in 1987 and between 2010 and 2014. Results of statistical evaluation between years are provided in Appendix 2.

Voor	Year Non-spawner			Non-spawner Female spawner					Male spawner				Total			
I Cal	Mean	Median	Range	n=	Mean	Median	Range	n=	Mean	Median	Range	n=	Mean	Median	Range	n=
2014	415 ± 100	420	250-705	162	495 ± 51	485	385-625	228	527 ± 89	530	350-780	109	476 ± 90	480	250-780	499
2013	452 ± 82	440	270-680	321	494 ± 52	495	365-605	131	509 ± 84	510	350-680	83	471 ± 80	460	270-680	535
2012	433 ± 81	415	280-705	199	523 ± 46	530	390-650	179	577 ± 91	610	335-705	164	507 ± 96	510	280-705	542
2011	417 ± 108	395	260-675	143	503 ± 39	500	380-610	117	537 ± 78	545	345-700	77	474 ± 97	490	260-700	337
2010	452 ± 82	460	280-690	266	477 ± 37	475	390-610	127	530 ± 67	530	335-710	65	470 ± 75	475	280-710	458
1987	429 ± 86	392	315-623	141	489 ± 48	491	364-602	152	536 ± 65	536	313-689	99	479 ± 80	490	315-689	392

Table 4. Frequency among categories of annual change in reproductive status of female, male, and sex unknown anadromous Dolly Varden from the Babbage River based on the recapture of tagged fish at the spawning and overwintering area between 2011 and 2014.

Annual change	Female	Male	Unknown
Non-spawner to Non-spawner			6
Non-spawner to Spawner	5	13	
Spawner to Spawner	22	10	
Spawner to Non-spawner	2	7	
Total n=	29	30	6

Table 5. Percent (frequency in brackets) of live-sampled anadromous Dolly Varden from the Babbage River identified as non-spawners, female spawners and male spawners captured at the spawning and overwintering area using a seine net in late September in 1987 and between 2010 and 2014. The ratio of female:male spawners, and proportion of spawners are calculated, and the number of freshwater juveniles (pre-smolt) (FWJ, ≤215 mm) and stream resident life-history type (RES)*.

Year	Non-spawner	Female spawner	Male spawner	Total n=	F:M spawner	% spawner	FWJ n=	RES n=
2014	32.5 (162)	45.7 (228)	21.8 (109)	499	2.1:1	67.5	4	15
2013	60.0 (321)	24.5 (131)	15.5 (83)	535	1.6:1	40.0	0	2
2012	36.7 (199)	33.0 (179)	30.3 (164)	542	1.1:1	63.3	2	20
2011	42.4 (143)	34.7 (117)	22.8 (77)	337	1.5:1	57.6	2	8
2010	58.1 (266)	27.7 (127)	14.2 (65)	458	2.0:1	41.9	1	5
1987	36.0 (143)	38.8 (153)	25.3 (99)	395	1.5:1	64.0	0	‡

^{*} sample size may not be same as Table 2 because some fish did not have length information recorded.

 $^{^{\}ddagger}$ unknown

Table 6. Contribution rates (%) and 95% confidence intervals (in brackets) of anadromous Dolly Varden from the Babbage River among harvest locations and sampling years based on stock mixture analyses using conditional maximum likelihood and Bayesian approaches with ONCOR and BAYES software, respectively. Number of genetic samples (n=).

Herschel Is.			Ptarmigan Bay*			King Pt./ Sabine Pt.			Shingle Pt.			
	BAYES	ONCOR	n=	BAYES	ONCOR	n=	BAYES	ONCOR	n=	BAYES	ONCOR	n=
2014	2 (0-4)	2 (0-4)	143				34 (14-61)	36 (14-64)	14	68 (64-73)	68 (63-73)	384
2013	15 (9-22)	14 (8-21)	107				83 (63-96)	88 (71-100)	16	30 (21-39)	30 (21-38)	107
2012	6 (2-11)	5 (1-9)	87				97 (92-100)	98 (95-100)	65	89 (84-93)	89 (85-93)	236
2011	7 (3-14)	7 (2-14)	83	7 (3-14)	7 (2-14)	87	80 (62-93)	79 (63-96)	23	68 (60-75)	68 (60-75)	162

^{*} no genetic samples available from Ptarmigan Bay 2012-2014

Table 7. Number of and dates when anadromous Dolly Varden were harvested at subsistence fishing locations along the Canadian Beaufort Sea coast, and the estimated percent contribution (\pm 95% C.I.) and number of harvested fish (\pm 95% C.I.) from the Babbage River stock based on a genetic mixed-stock fishery analysis (Bayesian mixture methods).

Locations	Year	Dates of harvest and sampling	Total number of Dolly Varden harvested	% contribution to harvest from Babbage River stock	Number of Babbage River stock harvested
Herschel Island	2014	Jun. 21 - Aug. 11	151	2 (0 - 4)	2 (0 - 6)
	2013	Jun. 29 - Aug. 29	189	15 (9 - 22)	27 (16 - 41)
	2012	Jul. 15 - Aug. 19	118	6 (2 - 11)	5 (2 - 13)
	2011	Jun. 13 - Aug. 4	129	7 (3 - 14)	9 (4 - 18)
Ptarmigan Bay	2014	-	-	- · ·	-
-	2013	Early Jul.	12	*	*
	2012	Early Jul.	1	*	*
	2011	Jul. 1 - 4	93	7 (3 - 14)	9 (4 - 15)
King Pt./ Sabine Pt.	2014	Jul. 18 & Aug. 1	16	34 (14 - 64)	5 (2 - 10)
_	2013	Aug. 2 & 3	19	83 (63 - 96)	16 (12 - 18)
	2012	Jul. 20 - 23	66	97 (92 - 100)	64 (61 - 66)
	2011	Jul. 22-23 & Aug. 2	43	80 (62 - 93)	34 (27 - 40)
Shingle Point	2014	Jul. 17 - Aug. 8	404	68 (64 - 73)	277 (258 - 296)
	2013	Jul. 30 - Aug. 14	115	30 (21 - 39)	34 (25 - 44)
	2012	Jul. 16 - Aug. 9	412	89 (84 - 93)	367 (348 - 381)
	2011	Jul. 22 - Aug. 9	193	68 (60 - 75)	130 (117 - 144)
Total	2014	G	571	,	294
	2013		335		77
	2012		597		437
	2011		458		183

⁻ no fishing occurred at Ptarmigan Bay in 2014

^{*} no genetic samples collected; assumed that contribution of Babbage River stock was minimal

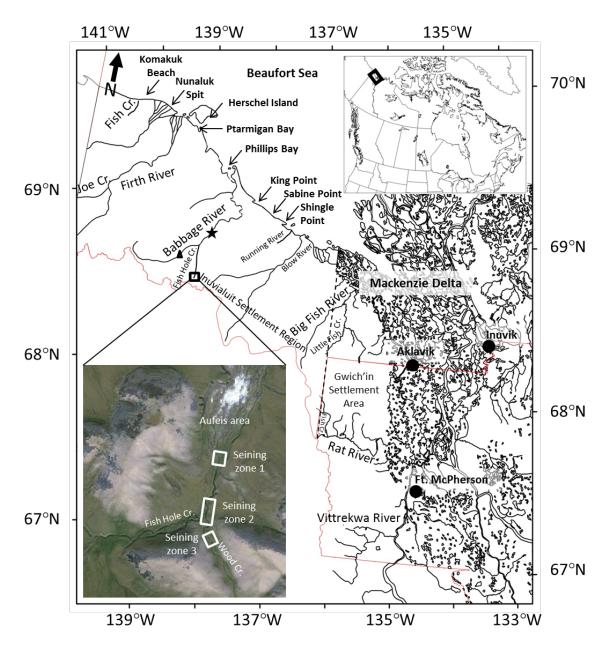


Figure 1. Location of rivers and creeks* in the Inuvialuit Settlement Region and Gwich'in Settlement Area (red lines delineate land claim borders) known to have anadromous Dolly Varden, and locations along the Beaufort Sea coast where harvesting of Dolly Varden can occur. Insert on lower left is a satellite image (Google Earth) of Fish Hole Creek, the spawning and overwintering tributary of the Babbage River stock, showing the locations (white boxes) where seining was conducted (end of September). The star and triangle on the Babbage River shows the location of the camp where DIDSON was deployed and the falls, respectively.

*Fish Cr., Joe Cr., Firth R., Babbage R./ Fish Hole Cr., Big Fish R./ Little Fish R., Rat R./ Fish Cr., and Vittrekwa R.

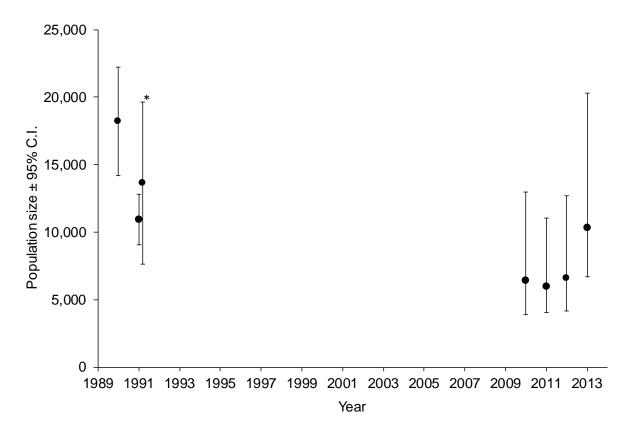


Figure 2. Estimates of population abundance of anadromous Dolly Varden ≥365 mm from the Babbage River stock in 1990 and 1991, and between 2010 and 2013 generated by mark-recapture studies. Another estimate for 1991 (*) was calculated in Sandstrom et al. 1997 using Bailey's triple capture model.

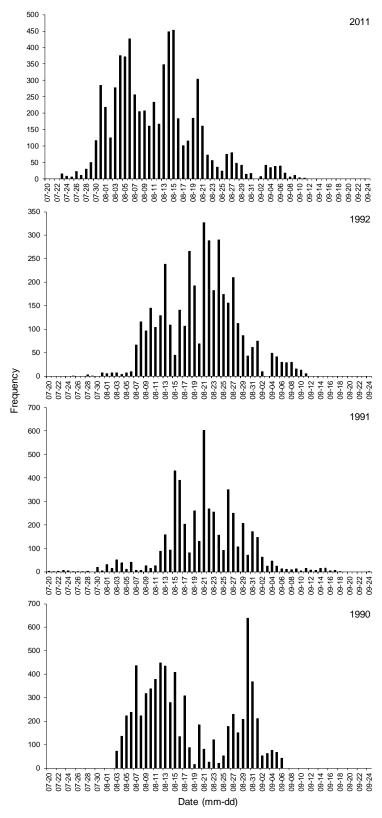


Figure 3. Daily number of fish enumerated moving upstream in the Babbage River using the DIDSON camera in 2011 and the daily number of Dolly Varden enumerated using a weir in the river in 1990, 1991 and 1992.

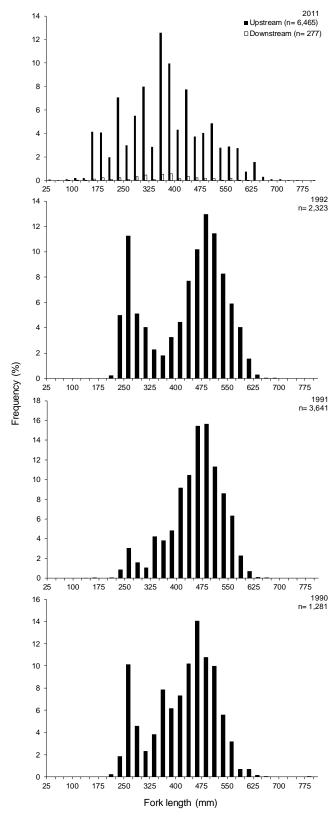


Figure 4. Length frequency distribution of fish moving upstream and downstream in the Babbage River observed using the DIDSON camera in 2011, and of Dolly Varden captured using a weir deployed in the river in 1990, 1991 and 1992.

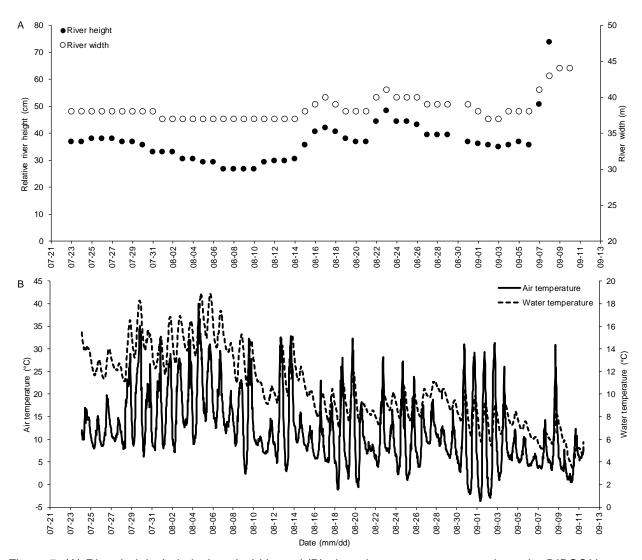


Figure 5. (A) River height (relative) and width, and (B) air and water temperature where the DIDSON camera was deployed in the Babbage River (N 68.87699, W 138.62563) between July 21 and September 11, 2011.

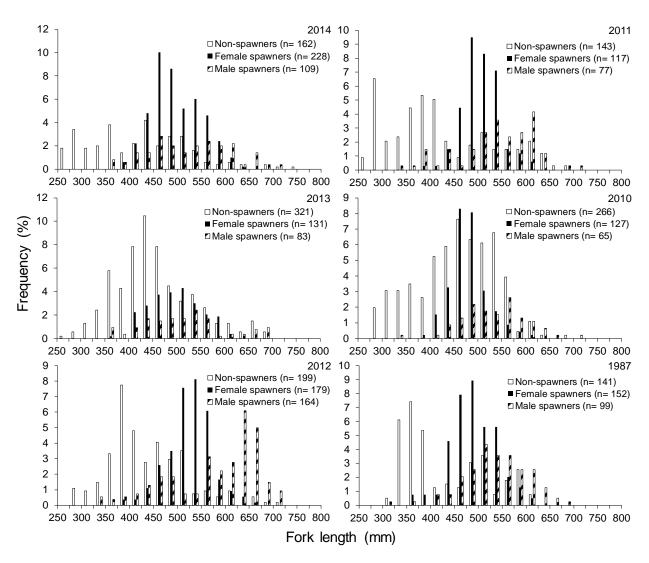


Figure 6. Length frequency distribution of anadromous Dolly Varden from the Babbage River identified as non-spawners, female spawners, and male spawners captured using a seine net at the spawning and overwintering area at end of September in 1987, and between 2010 and 2014.

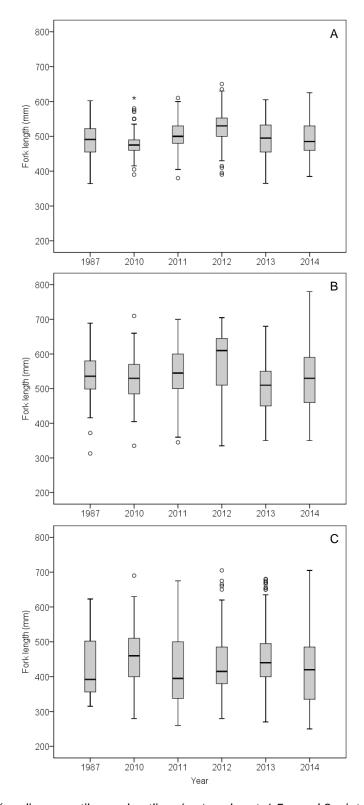


Figure 7. Fork length (median, quartiles and outliers $(\circ, \star; values \ge 1.5 x \text{ and } 3 x \text{ inter quartile range,}$ respectively)) of anadromous Dolly Varden from the Babbage River identified as A) female spawners, B) male spawners, and C) non-spawners seined at the spawning and overwintering area in 1987, and between 2010 and 2014..

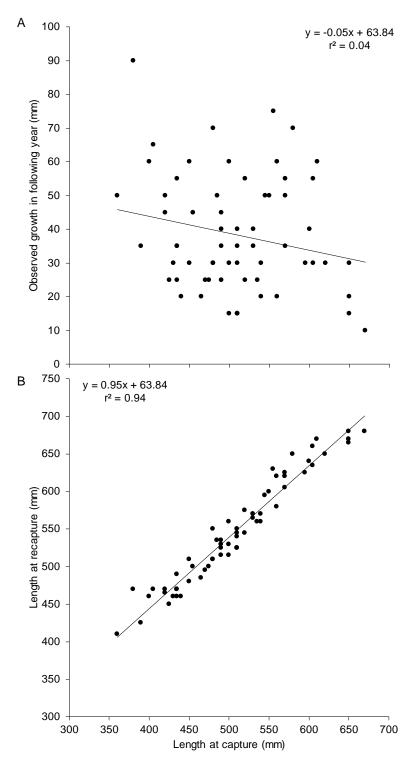


Figure 8. (A) Observed annual growth and (B) length at capture and recapture of anadromous Dolly Varden from the Babbage River based on mark and recapture studies between 2010 and 2014.

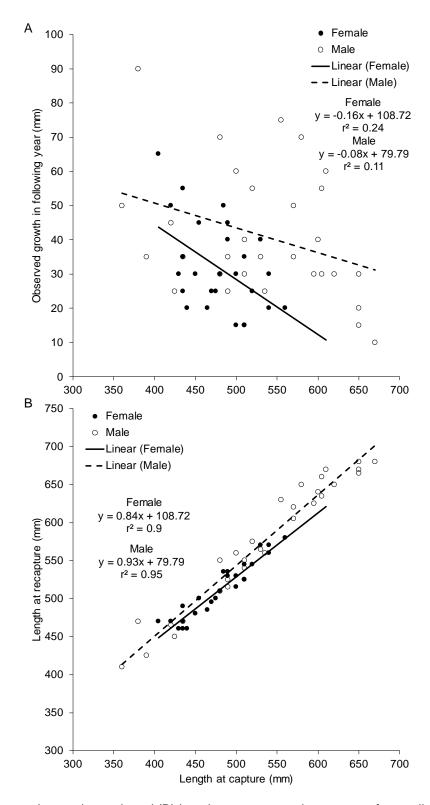


Figure 9. (A) Observed annual growth and (B) length at capture and recapture of sexually immature and mature male and female anadromous Dolly Varden from the Babbage River based on mark and recapture studies between 2010 and 2014.

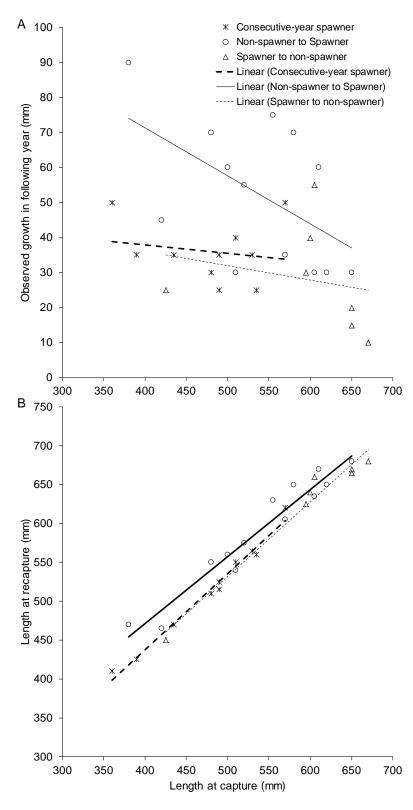


Figure 10. (A) Observed annual growth and (B) length at capture and recapture of male anadromous Dolly Varden from the Babbage River among categories of reproductive status from one year to the next based on mark and recapture studies between 2010 and 2014.

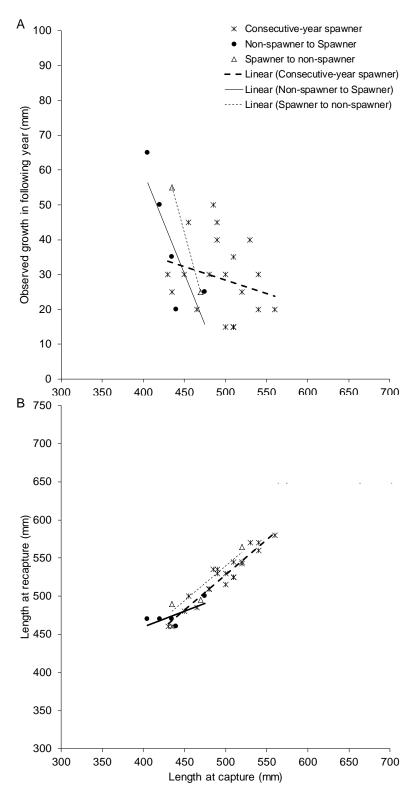


Figure 11. (A) Observed annual growth and (B) length at capture and recapture of female anadromous Dolly Varden from the Babbage River among categories of reproductive status from one year to the next based on mark and recapture studies between 2010 and 2014.

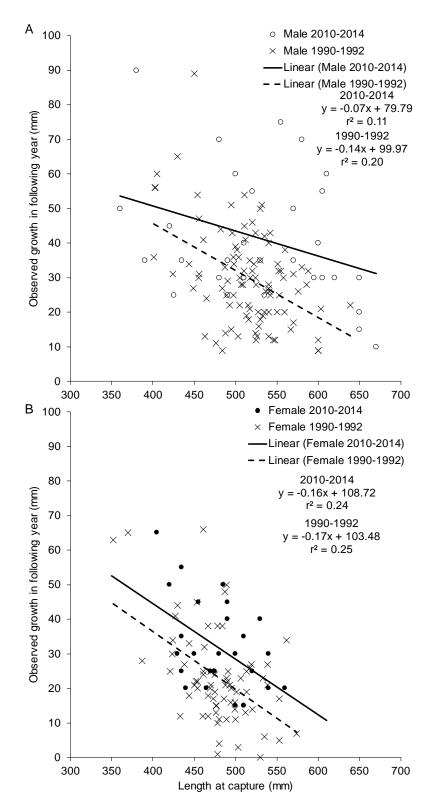


Figure 12. Observed annual growth of female and male anadromous Dolly Varden from the Babbage River between 2010-2014 and 1990-1992.

APPENDIX 1

Table A1-1: Biological information of Dolly Varden from the Babbage River stock (Fish Hole Creek) captured using a seine net in the fall of 1987 and 2010-2014 for t-bar tagging programs. Data: life history (anadromous, resident, freshwater juvenile, young-of-the-year), date of capture (dd-month-yy), seine # (sequential order of seine net deployed in pools), sex (male and female), reproductive status (spawner or non-spawner), tag ID (individually unique numbers), injury (scar= old injury that is healed, or wound= recent injury; size is >2.5 cm and incurred from predators) (not recorded in 1987), injury location (combination of anterior/ posterior and ventral/ dorsal), recapture (confirms if sample was previously tagged), recapture tag ID, tag colour (1987= yellow; 2010 and 2013= red; 2011 and 2014= grey; 2012= brown), sampling area (general location where seining occurred). In 1987, locations were described as A (Fish Hole below small 3 ft falls on Canoe Ck.), B (above hole between falls and above 2nd falls), C (above 2nd falls in and around spawning holes just below jctn of Wood Ck.), and D (above braided area in main spawning area). In 2010-2014, zones 1, 2, 3 correspond to boxes illustrated on Fish Hole Creek map in Figure 1. It is noted that a 370 mm female in spawning condition (September 21, 2012 in seine #3) was confirmed to be a resident life history using otolith strontium analysis.

Life history	Date	Seine #	Fork length (mm)	Sex	Reprod. status	Tag ID	Injury	Injury location	Recapture	Recapture tag ID	Tag colour	Sampling area
Anadromous	22-Sep-87	1	554	Female	Spawner	61051					Yellow	Α
Anadromous	22-Sep-87	1	592	Female	Spawner	61052					Yellow	Α
Anadromous	22-Sep-87	1	623	Female	Silver	61053					Yellow	Α
Anadromous	22-Sep-87	1	567	Female	Silver	61054					Yellow	Α
Anadromous	22-Sep-87	1	570	Male	Silver	61055					Yellow	Α
Anadromous	22-Sep-87	1	520	Female	Silver	61056					Yellow	Α
Anadromous	22-Sep-87	1	490	Female	Silver	61057					Yellow	Α
Anadromous	22-Sep-87	1	494	Female	Silver	61058					Yellow	Α
Anadromous	22-Sep-87	1	355		Silver	61059					Yellow	Α
Anadromous	23-Sep-87	2	570	Male	Spawner	61060					Yellow	В
Anadromous	23-Sep-87	2	472		Silver	61061					Yellow	В
Anadromous	23-Sep-87	2	586	Male	Silver	61062					Yellow	В
Anadromous	23-Sep-87	2	523	Female	Silver	61063					Yellow	В
Anadromous	23-Sep-87	2	580	Female	Silver	61064					Yellow	В
Anadromous	23-Sep-87	2	507	Female	Silver	61065					Yellow	В
Anadromous	23-Sep-87	2	419	Female	Silver	61066					Yellow	В
Anadromous	23-Sep-87	2	432		Silver	61067					Yellow	В
Anadromous	23-Sep-87	2	482		Silver	61068					Yellow	В
Anadromous	23-Sep-87	2	358		Silver	61069					Yellow	В
Anadromous	23-Sep-87	2	406		Silver	61070					Yellow	В
Anadromous	23-Sep-87	2	419		Silver	61071					Yellow	В
Anadromous	23-Sep-87	2	475		Silver	61072					Yellow	В
Anadromous	23-Sep-87	2	514		Silver	61073					Yellow	В
Anadromous	23-Sep-87	2	393		Silver	61074					Yellow	В
Anadromous	23-Sep-87	2	476		Silver	61075					Yellow	В

Anadromous	23-Sep-87	2	568	Male	Silver	61076
Anadromous	23-Sep-87	2	528	Female	Silver	61077
Anadromous	23-Sep-87	2	476	Female	Silver	61078
Anadromous	23-Sep-87	2	524	Male	Silver	61079
Anadromous	23-Sep-87	2	502	Female	Silver	61080
Anadromous	23-Sep-87	2	384			61081
Anadromous	23-Sep-87	2	349		Silver	61082
Anadromous	23-Sep-87	2	438	Male	Spawner	61083
Anadromous	23-Sep-87	2	488	Female	Silver	61084
Anadromous	23-Sep-87	2	386	Female	Silver	61085
Anadromous	23-Sep-87	2	445	Female	Spawner	61086
Anadromous	23-Sep-87	2	497	Female	Spawner	61087
Anadromous	23-Sep-87	2	378		Silver	61088
Anadromous	23-Sep-87	2	512	Male	Spawner	61089
Anadromous	23-Sep-87	2	576		Silver	61090
Anadromous	23-Sep-87	2	568	Female	Silver	61091
Anadromous	23-Sep-87	2	454	Female	Silver	61092
Anadromous	23-Sep-87	2	450	Male	Spawner	61093
Anadromous	23-Sep-87	2	499	Male	Spawner	61094
Anadromous	23-Sep-87	2	481		Silver	61095
Anadromous	23-Sep-87	2	467	Female	Spawner	61096
Anadromous	23-Sep-87	2	426	Female	Silver	61097
Anadromous	23-Sep-87	2	514	Male	Spawner	61098
Anadromous	23-Sep-87	2	536	Female	Spawner	61099
Anadromous	23-Sep-87	2	471		Silver	61100
Anadromous	23-Sep-87	2	455	Female	Spawner	61101
Anadromous	23-Sep-87	2	472		Silver	61102
Anadromous	23-Sep-87	2	456	Male	Spawner	61103
Anadromous	23-Sep-87	2	579	Female	Silver	61104
Anadromous	23-Sep-87	2	495	Female	Spawner	61105
Anadromous	23-Sep-87	2	530	Female	Spawner	61106
Anadromous	23-Sep-87	2	373		Silver	61107
Anadromous	23-Sep-87	2	387		Silver	61108
Anadromous	23-Sep-87	2	516	Male	Spawner	61109
Anadromous	23-Sep-87	2	577	Male	Silver	61110
Anadromous	23-Sep-87	2	516	Male	Silver	61111
Anadromous	23-Sep-87	2	580	Male	Silver	61112
Anadromous	23-Sep-87	2	515	Male	Spawner	61113
Anadromous	23-Sep-87	2	460	Female	Spawner	61114
Anadromous	23-Sep-87	2	462	Female	Spawner	61115
Anadromous	23-Sep-87	2	589	Male	Silver	61116
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В

Yellow

В

Anadromous	23-Sep-87	2	536	Female	Silver	61117		Yellow
Anadromous	23-Sep-87	2	353		Silver	61118		Yellow
Anadromous	23-Sep-87	2	527	Male	Spawner	61119		Yellow
Anadromous	23-Sep-87	2	551	Female	Spawner	61120		Yellow
Anadromous	23-Sep-87	2	396		Silver	61121		Yellow
Anadromous	23-Sep-87	2	367		Silver	61122		Yellow
Anadromous	23-Sep-87	2	350		Silver	61123		Yellow
Anadromous	23-Sep-87	2	578		Silver	61124		Yellow
Anadromous	23-Sep-87	2	433	Female	Spawner	61125		Yellow
Anadromous	23-Sep-87	2	602	Female	Spawner	61126		Yellow
Anadromous	23-Sep-87	2	612	Male	Spawner	61127		Yellow
Anadromous	23-Sep-87	2	436		Silver	61128		Yellow
Anadromous	23-Sep-87	2	549	Male	Spawner	61129		Yellow
Anadromous	23-Sep-87	2	527	Female	Spawner	61130		Yellow
Anadromous	23-Sep-87	2	383	Female	Spawner	61131		Yellow
Anadromous	23-Sep-87	2	560	Male	Silver	61132		Yellow
Anadromous	23-Sep-87	2	492	Female	Spawner	61133		Yellow
Anadromous	23-Sep-87	2	484	Female	Spawner	61134		Yellow
Anadromous	23-Sep-87	2	520	Female	Silver	61135		Yellow
Anadromous	23-Sep-87	2	433		Silver	61136		Yellow
Anadromous	23-Sep-87	2	515		Silver	61137		Yellow
Anadromous	23-Sep-87	2	352		Silver	61138		Yellow
Anadromous	23-Sep-87	2	370		Silver	61139		Yellow
Anadromous	23-Sep-87	2	389		Silver	61140		Yellow
Anadromous	23-Sep-87	2	593	Male	Spawner	61141		Yellow
Anadromous	23-Sep-87	2	501	Female	Spawner	61142		Yellow
Anadromous	23-Sep-87	2	470	Female	Spawner	61143		Yellow
Anadromous	23-Sep-87	2	455	Female	Spawner	61144		Yellow
Anadromous	23-Sep-87	2	577		Spawner	61145		Yellow
Anadromous	23-Sep-87	2	383	Female	Silver	61146		Yellow
Anadromous	23-Sep-87	2	412		Spawner	61147		Yellow
Anadromous	23-Sep-87	2	378	Female	Silver	61148		Yellow
Anadromous	23-Sep-87	2	430		Spawner	61149		Yellow
Anadromous	23-Sep-87	2	458	Female	Spawner	61150		Yellow
Anadromous	23-Sep-87	2	444	Female	Spawner	61175		Yellow
Anadromous	23-Sep-87	2	589	Male	Silver	61176		Yellow
Anadromous	23-Sep-87	2	600	Male	Silver	61177		Yellow
Anadromous	23-Sep-87	2	446	Female	Spawner	61178		Yellow
Anadromous	23-Sep-87	2	522		Silver	61179		Yellow
Anadromous	23-Sep-87	2	500	Female	Spawner	61180		Yellow
Anadromous	23-Sep-87	2	544	Female	Spawner	61181		Yellow

В В

Anadromous	23-Sep-87	2	550	Female	Spawner	61182		Yellow	В
Anadromous	24-Sep-87	3	344		Silver	61183		Yellow	С
Anadromous	24-Sep-87	3	373		Silver	61184		Yellow	С
Anadromous	24-Sep-87	3	351		Silver	61185		Yellow	С
Anadromous	24-Sep-87	3	564	Male	Spawner	61186		Yellow	С
Anadromous	24-Sep-87	3	472	Female	Spawner	61187		Yellow	С
Anadromous	24-Sep-87	3	513	Female	Silver	61188		Yellow	С
Anadromous	24-Sep-87	3	505	Male	Spawner	61189		Yellow	С
Anadromous	24-Sep-87	3	540	Male	Spawner	61190		Yellow	С
Anadromous	24-Sep-87	3	489		Silver	61191		Yellow	С
Anadromous	24-Sep-87	3	542	Female	Spawner	61192		Yellow	С
Anadromous	24-Sep-87	3	594	Female	Spawner	61193		Yellow	С
Anadromous	24-Sep-87	3	489	Female	Spawner	61194		Yellow	С
Anadromous	24-Sep-87	3	487	Female	Spawner	61195		Yellow	С
Anadromous	24-Sep-87	3	357		Silver	61196		Yellow	С
Anadromous	24-Sep-87	3	467	Female	Spawner	61197		Yellow	С
Anadromous	24-Sep-87	3	612	Male	Silver	61198		Yellow	С
Anadromous	24-Sep-87	3	596	Female	Spawner	61199		Yellow	С
Anadromous	24-Sep-87	3	566	Male	Spawner	61200		Yellow	С
Anadromous	24-Sep-87	3	427	Female	Spawner	61151		Yellow	С
Anadromous	24-Sep-87	3	480	Female	Spawner	61152		Yellow	С
Anadromous	24-Sep-87	3	499	Male	Spawner	61153		Yellow	С
Anadromous	24-Sep-87	3	345		Silver	61154		Yellow	С
Anadromous	24-Sep-87	3	470	Female	Spawner	61155		Yellow	С
Anadromous	24-Sep-87	3	424	Male	Spawner	61156		Yellow	С
Anadromous	24-Sep-87	3	544	Male	Silver	61157		Yellow	С
Anadromous	24-Sep-87	3	496	Female	Spawner	61158		Yellow	С
Anadromous	24-Sep-87	3	358		Silver	61159		Yellow	С
Anadromous	24-Sep-87	3	468	Female	Spawner	61160		Yellow	С
Anadromous	24-Sep-87	3	496	Female	Spawner	61161		Yellow	С
Anadromous	24-Sep-87	3	362		Silver	61162		Yellow	С
Anadromous	24-Sep-87	3	340		Silver	61163		Yellow	С
Anadromous	24-Sep-87	3	365	Female	Spawner	61164		Yellow	С
Anadromous	24-Sep-87	3	569	Male	Spawner	61165		Yellow	С
Anadromous	24-Sep-87	3	605	Male	Spawner	61166		Yellow	С
Anadromous	24-Sep-87	3	494	Male	Spawner	61167		Yellow	С
Anadromous	24-Sep-87	3	407	Female	Spawner	61168		Yellow	С
Anadromous	24-Sep-87	3	359		Silver	61169		Yellow	С
Anadromous	24-Sep-87	3	499	Female	Spawner	61170		Yellow	С
Anadromous	24-Sep-87	3	635	Male	Spawner	61171		Yellow	С
Anadromous	24-Sep-87	3	581	Male	Spawner	61172		Yellow	С

Anadromous	24-Sep-87	3	527	Female	Spawner	61173	,
Anadromous	24-Sep-87	3	510	Male	Spawner	61174	,
Anadromous	24-Sep-87	3	437	Male	Spawner	61201	,
Anadromous	24-Sep-87	3	328		Silver	61202	,
Anadromous	24-Sep-87	3	544	Male	Spawner	61203	•
Anadromous	24-Sep-87	3	429	Female	Spawner	61204	,
Anadromous	24-Sep-87	3	671	Male	Spawner	61205	,
Anadromous	24-Sep-87	3	554	Male	Spawner	61206	,
Anadromous	24-Sep-87	3	581	Male	Spawner	61207	,
Anadromous	24-Sep-87	3	654	Male	Spawner	61208	,
Anadromous	24-Sep-87	3	588	Male	Spawner	61209	,
Anadromous	24-Sep-87	3	476	Female	Spawner	61210	,
Anadromous	24-Sep-87	3	621	Male	Spawner	61211	,
Anadromous	24-Sep-87	3	507	Female	Spawner	61212	,
Anadromous	24-Sep-87	3	544	Female	Spawner	61213	,
Anadromous	24-Sep-87	3	626	Male	Spawner	61214	,
Anadromous	24-Sep-87	3	490	Female	Spawner	61215	,
Anadromous	24-Sep-87	3	496	Female	Spawner	61216	,
Anadromous	24-Sep-87	3	480	Female	Spawner	61217	•
Anadromous	24-Sep-87	3	496	Female	Spawner	61218	•
Anadromous	24-Sep-87	3	512	Female	Spawner	61219	•
Anadromous	24-Sep-87	3	575	Male	Spawner	61220	•
Anadromous	24-Sep-87	3	475	Female	Spawner	61221	•
Anadromous	24-Sep-87	3	615	Male	Spawner	61222	•
Anadromous	24-Sep-87	3	487	Male	Spawner	61223	•
Anadromous	24-Sep-87	3	536	Male	Spawner	61224	•
Anadromous	24-Sep-87	3	461	Male	Spawner	61225	•
Anadromous	24-Sep-87	3	498	Female	Spawner	61226	•
Anadromous	24-Sep-87	3	565	Male	Spawner	61227	•
Anadromous	24-Sep-87	3	512	Female	Spawner	61228	•
Anadromous	24-Sep-87	3	491	Male	Spawner	61229	•
Anadromous	24-Sep-87	3	316		Silver	61230	,
Anadromous	24-Sep-87	3	450	Female	Spawner	61231	•
Anadromous	24-Sep-87	3	430	Female	Spawner	61232	,
Anadromous	24-Sep-87	3	430	Female	Spawner	61233	,
Anadromous	24-Sep-87	3	510	Female	Spawner	61234	,
Anadromous	24-Sep-87	3	532	Male	Spawner	61235	,
Anadromous	24-Sep-87	3	501	Male	Spawner	61236	•
Anadromous	24-Sep-87	3	460	Female	Spawner	61237	•
Anadromous	24-Sep-87	3	508	Female	Spawner	61238	•
Anadromous	24-Sep-87	3	538	Male	Spawner	61239	•

С С

Anadromous	24-Sep-87	3	525	Male	Spawner	61240		Yellow	С
Anadromous	24-Sep-87	3	454	Female	Spawner	61241		Yellow	С
Anadromous	24-Sep-87	3	460	Male	Spawner	61242		Yellow	С
Anadromous	24-Sep-87	3	630	Male	Spawner	61243		Yellow	С
Anadromous	24-Sep-87	3	461	Female	Spawner	61244		Yellow	С
Anadromous	24-Sep-87	3	360		Silver	61245		Yellow	С
Anadromous	24-Sep-87	3	512	Male	Spawner	61246		Yellow	С
Anadromous	24-Sep-87	3			Silver	61247		Yellow	С
Anadromous	24-Sep-87	3			Silver	61248		Yellow	С
Anadromous	24-Sep-87	3	450	Female	Spawner	61249		Yellow	С
Anadromous	24-Sep-87	3	514	Male	Spawner	61250		Yellow	С
Anadromous	24-Sep-87	3	517	Female	Spawner	61251		Yellow	С
Anadromous	24-Sep-87	3	499	Female	Spawner	61252		Yellow	С
Anadromous	24-Sep-87	3	607	Male	Spawner	61253		Yellow	С
Anadromous	24-Sep-87	3	472	Female	Spawner	61254		Yellow	С
Anadromous	24-Sep-87	3	481	Male	Spawner	61255		Yellow	С
Anadromous	24-Sep-87	3	503	Female	Spawner	61256		Yellow	С
Anadromous	24-Sep-87	3	554	Female	Spawner	61257		Yellow	С
Anadromous	24-Sep-87	3	337	Female	Silver	61258		Yellow	С
Anadromous	24-Sep-87	3	356		Silver	61259		Yellow	С
Anadromous	24-Sep-87	3	326		Silver	61260		Yellow	С
Anadromous	24-Sep-87	3	446	Male	Silver	61261		Yellow	С
Anadromous	24-Sep-87	3	503	Male	Silver	61262		Yellow	С
Anadromous	24-Sep-87	3	366		Silver	61263		Yellow	С
Anadromous	24-Sep-87	3	534	Male	Spawner	61264		Yellow	С
Anadromous	24-Sep-87	3	426	Female	Spawner	61265		Yellow	С
Anadromous	24-Sep-87	3	563	Male	Spawner	61266		Yellow	С
Anadromous	24-Sep-87	3	430		Silver	61267		Yellow	С
Anadromous	24-Sep-87	3	497	Female	Spawner	61268		Yellow	С
Anadromous	24-Sep-87	3	340		Silver	61269		Yellow	С
Anadromous	24-Sep-87	3	560		Silver	61270		Yellow	С
Anadromous	24-Sep-87	3	575	Female	Spawner	61271		Yellow	С
Anadromous	24-Sep-87	3	586	Female	Spawner	61272		Yellow	С
Anadromous	24-Sep-87	3	580		Silver	61273		Yellow	С
Anadromous	24-Sep-87	3	563	Female	Spawner	61274		Yellow	С
Anadromous	24-Sep-87	3	493	Female	Spawner	61275		Yellow	С
Anadromous	24-Sep-87	3	498	Male	Spawner	61276		Yellow	С
Anadromous	24-Sep-87	3	460	Female	Spawner	61277		Yellow	С
Anadromous	24-Sep-87	3	422	Female	Spawner	61278		Yellow	С
Anadromous	24-Sep-87	3	475	Female	Spawner	61279		Yellow	С
Anadromous	24-Sep-87	3	345		Silver	61280		Yellow	С

Anadromous	24-Sep-87	3	546	Female	Spawner	61281		Yellow	С
Anadromous	24-Sep-87	3	343		Silver	61282		Yellow	С
Anadromous	24-Sep-87	3	375		Silver	61283		Yellow	С
Anadromous	24-Sep-87	3	351		Silver	61284		Yellow	С
Anadromous	24-Sep-87	3	342		Silver	61285		Yellow	С
Anadromous	24-Sep-87	3	340		Silver	61286		Yellow	С
Anadromous	24-Sep-87	3	398		Silver	61287		Yellow	С
Anadromous	24-Sep-87	3	382		Silver	61288		Yellow	С
Anadromous	24-Sep-87	3	342		Silver	61289		Yellow	С
Anadromous	24-Sep-87	3	530	Female	Spawner	61290		Yellow	С
Anadromous	24-Sep-87	3	510	Female	Spawner	61291		Yellow	С
Anadromous	24-Sep-87	3	455	Female	Spawner	61292		Yellow	С
Anadromous	24-Sep-87	3	515	Male	Spawner	61293		Yellow	С
Anadromous	24-Sep-87	3	462	Male	Spawner	61294		Yellow	С
Anadromous	24-Sep-87	3	556	Male	Spawner	61295		Yellow	С
Anadromous	24-Sep-87	3	491	Female	Spawner	61296		Yellow	С
Anadromous	24-Sep-87	3	480	Female	Spawner	61297		Yellow	С
Anadromous	24-Sep-87	3	361		Silver	61298		Yellow	С
Anadromous	24-Sep-87	3	374		Silver	61299		Yellow	С
Anadromous	24-Sep-87	3	315		Silver	61300		Yellow	С
Anadromous	25-Sep-87	4	500		Silver	61301		Yellow	D
Anadromous	25-Sep-87	4	432	Female	Spawner	61302		Yellow	D
Anadromous	25-Sep-87	4	510	Male	Spawner	61303		Yellow	D
Anadromous	25-Sep-87	4	488	Male	Spawner	61304		Yellow	D
Anadromous	25-Sep-87	4	516	Female	Spawner	61305		Yellow	D
Anadromous	25-Sep-87	4	388		Silver	61306		Yellow	D
Anadromous	25-Sep-87	4	498	Male	Spawner	61307		Yellow	D
Anadromous	25-Sep-87	4	489		Silver	61308		Yellow	D
Anadromous	25-Sep-87	4	479	Female	Spawner	61309		Yellow	D
Anadromous	25-Sep-87	4	510	Female	Spawner	61310		Yellow	D
Anadromous	25-Sep-87	4	469	Female	Spawner	61311		Yellow	D
Anadromous	25-Sep-87	4	521	Female	Spawner	61312		Yellow	D
Anadromous	25-Sep-87	4	534	Female	Spawner	61313		Yellow	D
Anadromous	25-Sep-87	4	428	Female	Spawner	61314		Yellow	D
Anadromous	25-Sep-87	4	503	Female	Spawner	61315		Yellow	D
Anadromous	25-Sep-87	4	490		Silver	61316		Yellow	D
Anadromous	25-Sep-87	4	512		Silver	61317		Yellow	D
Anadromous	25-Sep-87	4	415	Female	Spawner	61318		Yellow	D
Anadromous	25-Sep-87	4	399	Female	Spawner	61319		Yellow	D
Anadromous	25-Sep-87	4	385		Silver	61320		Yellow	D
Anadromous	25-Sep-87	4	372	Male	Spawner	61321		Yellow	D
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Anadromous	25-Sep-87	4	366	Female	Spawner	61322	Y	'ellow
Anadromous	25-Sep-87	4	361	Terriale	Silver	61323		'ellow
Anadromous	25-Sep-87	4	335		Silver	61324		'ellow
Anadromous	25-Sep-87	4	344		Silver	61325		ellow
Anadromous	25-Sep-87	4	356		Silver	61326		'ellow
Anadromous	25-Sep-87	4	535	Male	Spawner	61327		'ellow
Anadromous	25-Sep-87	4	518	Female	Spawner	61328		ellow
Anadromous	25-Sep-87	4	506	Male	Spawner	61329		ellow
Anadromous	25-Sep-87	4	466	Female	Spawner	61330		ellow
Anadromous	25-Sep-87	4	499	Female	Spawner	61331		ellow
Anadromous	25-Sep-87	4	523	Female	Spawner	61332	Y	ellow
Anadromous	25-Sep-87	4	497	Female	Spawner	61333		ellow
Anadromous	25-Sep-87	4	384		Silver	61334		ellow
Anadromous	25-Sep-87	4	600	Female	Spawner	61335		ellow
Anadromous	25-Sep-87	4	606	Male	Spawner	61336	Y	ellow
Anadromous	25-Sep-87	4	351		Silver	61337		ellow
Anadromous	25-Sep-87	4	443	Female	Spawner	61338		ellow
Anadromous	25-Sep-87	4	523	Male	Spawner	61339	Y	ellow
Anadromous	25-Sep-87	4	542	Female	Spawner	61340	Y	ellow
Anadromous	25-Sep-87	4	313	Male	Spawner	61341	Y	ellow
Anadromous	25-Sep-87	4	517	Male	Spawner	61342	Y	ellow
Anadromous	25-Sep-87	4	542	Female	Spawner	61343	Y	ellow
Anadromous	25-Sep-87	4	556	Male	Spawner	64344	Y	ellow
Anadromous	25-Sep-87	4	582	Male	Spawner	61345	Y	ellow
Anadromous	25-Sep-87	4	433	Female	Spawner	61346	Y	ellow
Anadromous	25-Sep-87	4	561	Male	Spawner	61347	Y	ellow
Anadromous	25-Sep-87	4	623	Male	Spawner	61348	Y	ellow
Anadromous	25-Sep-87	4	527	Female	Spawner	61349	Y	ellow
Anadromous	25-Sep-87	4	580	Male	Spawner	61350	Y	ellow
Anadromous	25-Sep-87	4	334		Silver	61351	Y	'ellow
Anadromous	25-Sep-87	4	464	Female	Spawner	61352	Y	ellow
Anadromous	25-Sep-87	4	541	Male	Spawner	61353	Y	'ellow
Anadromous	25-Sep-87	4	510	Male	Spawner	61354	Y	'ellow
Anadromous	25-Sep-87	4	525	Female	Spawner	61355	Y	ellow
Anadromous	25-Sep-87	4	400		Silver	61356	Y	ellow
Anadromous	25-Sep-87	4	459	Female	Spawner	61357	Y	ellow
Anadromous	25-Sep-87	4	405		Silver	61358	Y	ellow
Anadromous	25-Sep-87	4	447	Female	Spawner	61359	Y	ellow
Anadromous	25-Sep-87	4	475	Female	Spawner	61360	Y	ellow
Anadromous	25-Sep-87	4	354		Silver	61361	Y	ellow
Anadromous	25-Sep-87	4	349		Silver	61362	Y	'ellow

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Anadromous	25-Sep-87	4	325		Silver	61363	Yellow
Anadromous	25-Sep-87	4	470	Female	Spawner	61364	Yellow
Anadromous	25-Sep-87	4	602	Male	Spawner	61365	Yellow
Anadromous	25-Sep-87	4	455	Female	Spawner	61366	Yellow
Anadromous	25-Sep-87	4	615	Male	Spawner	61367	Yellow
Anadromous	25-Sep-87	4	526	Male	Spawner	61368	Yellow
Anadromous	25-Sep-87	4	454	Female	Spawner	61369	Yellow
Anadromous	25-Sep-87	4	633	Male	Spawner	61370	Yellow
Anadromous	25-Sep-87	4	538	Female	Spawner	61371	Yellow
Anadromous	25-Sep-87	4	450	Female	Spawner	61372	Yellow
Anadromous	25-Sep-87	4	562		Silver	61373	Yellow
Anadromous	25-Sep-87	4	372		Silver	61374	Yellow
Anadromous	25-Sep-87	4	381	Female	Spawner	61375	Yellow
Anadromous	25-Sep-87	4	370		Silver	61376	Yellow
Anadromous	25-Sep-87	4	376		Silver	61377	Yellow
Anadromous	25-Sep-87	4	394		Silver	61378	Yellow
Anadromous	25-Sep-87	4	345		Silver	61379	Yellow
Anadromous	25-Sep-87	4	518	Female	Spawner	61380	Yellow
Anadromous	25-Sep-87	4	545	Female	Spawner	61381	Yellow
Anadromous	25-Sep-87	4	379		Silver	61382	Yellow
Anadromous	25-Sep-87	4	557	Male	Spawner	61383	Yellow
Anadromous	25-Sep-87	4	580	Male	Spawner	61384	Yellow
Anadromous	25-Sep-87	4	550	Male	Spawner	61385	Yellow
Anadromous	25-Sep-87	4	395		Silver	61386	Yellow
Anadromous	25-Sep-87	4	497	Male	Spawner	61387	Yellow
Anadromous	25-Sep-87	4	469		Silver	61388	Yellow
Anadromous	25-Sep-87	4	488		Silver	61389	Yellow
Anadromous	25-Sep-87	4	343		Silver	61390	Yellow
Anadromous	25-Sep-87	4	329		Silver	61391	Yellow
Anadromous	25-Sep-87	4	637	Male	Spawner	61392	Yellow
Anadromous	25-Sep-87	4	560	Male	Spawner	61393	Yellow
Anadromous	25-Sep-87	4	551	Male	Spawner	61394	Yellow
Anadromous	25-Sep-87	4	510	Female	Spawner	61395	Yellow
Anadromous	25-Sep-87	4	426	Male	Spawner	61396	Yellow
Anadromous	25-Sep-87	4	689	Male	Spawner	61397	Yellow
Anadromous	25-Sep-87	4	379		Silver	61398	Yellow
Anadromous	25-Sep-87	4	456	Male	Spawner	61399	Yellow
Anadromous	25-Sep-87	4	551	Female	Spawner	61400	Yellow
Anadromous	25-Sep-87	4	448	Female	Spawner	61401	Yellow
Anadromous	25-Sep-87	4				61402	Yellow
Anadromous	25-Sep-87	4	495	Female	Spawner	61403	Yellow

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Anadromous	25-Sep-87	4	545	Female	Spawner	61404	Yellow
Anadromous	25-Sep-87	4	480	Female	Spawner	61405	Yellow
Anadromous	25-Sep-87	4	474	Male	Spawner	61406	Yellow
Anadromous	25-Sep-87	4	555	Female	Spawner	61407	Yellow
Anadromous	25-Sep-87	4	541	Male	Spawner	61408	Yellow
Anadromous	25-Sep-87	4	455	Female	Spawner	61409	Yellow
Anadromous	25-Sep-87	4	491	Female	Spawner	61410	Yellow
Anadromous	25-Sep-87	4	364	Female	Spawner	61411	Yellow
Anadromous	25-Sep-87	4	580	Male	Spawner	61412	Yellow
Anadromous	25-Sep-87	4	594	Male	Spawner	61413	Yellow
Anadromous	25-Sep-87	4	528	Female	Spawner	61414	Yellow
Anadromous	25-Sep-87	4	499	Female	Spawner	61415	Yellow
Anadromous	25-Sep-87	4	622	Male	Spawner	61416	Yellow
Anadromous	25-Sep-87	4	455	Female	Spawner	61417	Yellow
Anadromous	25-Sep-87	4	539	Male	Spawner	61418	Yellow
Anadromous	25-Sep-87	4	526	Female	Spawner	61419	Yellow
Anadromous	25-Sep-87	4	505	Female	Spawner	61420	Yellow
Anadromous	25-Sep-87	4	416	Male	Spawner	61421	Yellow
Anadromous	25-Sep-87	4	504	Female	Spawner	61422	Yellow
Anadromous	25-Sep-87	4	477	Female	Spawner	61423	Yellow
Anadromous	25-Sep-87	4	457	Male	Spawner	61424	Yellow
Anadromous	25-Sep-87	4	436	Female	Spawner	61425	Yellow
Anadromous	25-Sep-87	4		Female	Spawner	61426	Yellow
Anadromous	25-Sep-87	4	487	Female	Spawner	61427	Yellow
Anadromous	25-Sep-87	4	475	Female	Spawner	61428	Yellow
Anadromous	25-Sep-87	4	530	Female	Spawner	61429	Yellow
Anadromous	25-Sep-87	4	503	Male	Spawner	61430	Yellow
Anadromous	25-Sep-87	4	531	Female	Spawner	61431	Yellow
Anadromous	25-Sep-87	4	520	Female	Spawner	61432	Yellow
Anadromous	25-Sep-87	4	454	Female	Spawner	61433	Yellow
Anadromous	25-Sep-87	4	342		Silver	61434	Yellow
Anadromous	25-Sep-87	4	452	Female	Spawner	61435	Yellow
Anadromous	25-Sep-87	4	334		Silver	61436	Yellow
Anadromous	25-Sep-87	4	392		Silver	61437	Yellow
Anadromous	25-Sep-87	4	365		Silver	61438	Yellow
Anadromous	25-Sep-87	4	512	Female	Spawner	61439	Yellow
Anadromous	25-Sep-87	4	485	Female	Spawner	61440	Yellow
Anadromous	25-Sep-87	4	380		Silver	61441	Yellow
Anadromous	25-Sep-87	4	447	Female	Spawner	61442	Yellow
Anadromous	25-Sep-87	4	535	Female	Spawner	61443	Yellow
Anadromous	25-Sep-87	4	521	Male	Spawner	61444	Yellow

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Anadromous	25-Sep-87	4	356		Silver	61445			Yellow	D
Anadromous	25-Sep-87	4	444	Female	Spawner	61446			Yellow	D
Anadromous	25-Sep-87	4	565	Female	Spawner	61447			Yellow	D
Anadromous	25-Sep-87	4	422	Male	Spawner	61448			Yellow	D
Anadromous	25-Sep-87	4	370		Silver	61449			Yellow	D
Anadromous	25-Sep-87	4	342		Silver	61450			Yellow	D
Anadromous	19-Sep-10	2	530	Male	Spawner	1	No		Red	Zone 1
Anadromous	19-Sep-10	2	640	Male	Spawner	2	No		Red	Zone 1
Anadromous	19-Sep-10	2	550	Male	Spawner	3	No		Red	Zone 1
Anadromous	19-Sep-10	2	470	Male	Spawner	4	No		Red	Zone 1
Anadromous	19-Sep-10	2	485	Female	Spawner	5	No		Red	Zone 1
Anadromous	19-Sep-10	2	490	Female	Spawner	6	No		Red	Zone 1
Anadromous	19-Sep-10	2	570		Silver	7	No		Red	Zone 1
Anadromous	19-Sep-10	2	435	Female	Spawner	8	No		Red	Zone 1
Anadromous	19-Sep-10	2	510	Male	Spawner	9	No		Red	Zone 1
Anadromous	19-Sep-10	2	560	Male	Spawner	10	No		Red	Zone 1
Anadromous	19-Sep-10	2	520	Male	Spawner	11	No		Red	Zone 1
Anadromous	19-Sep-10	2	480	Female	Spawner	12	No		Red	Zone 1
Anadromous	19-Sep-10	2	470	Female	Spawner	13	No		Red	Zone 1
Anadromous	19-Sep-10	2	565	Male	Spawner	14	No		Red	Zone 1
Anadromous	19-Sep-10	2	610		Silver	15	No		Red	Zone 1
Anadromous	19-Sep-10	2	485	Female	Spawner	16	No		Red	Zone 1
Anadromous	19-Sep-10	2	600	Male	Spawner	17	No		Red	Zone 1
Anadromous	19-Sep-10	2	465	Female	Spawner	18	No		Red	Zone 1
Anadromous	19-Sep-10	2	595	Male	Spawner	19	No		Red	Zone 1
Anadromous	19-Sep-10	2	485	Female	Spawner	20	No		Red	Zone 1
Anadromous	19-Sep-10	2	605		Silver	21	No		Red	Zone 1
Anadromous	19-Sep-10	2	595	Male	Spawner	22	No		Red	Zone 1
Anadromous	19-Sep-10	2	690		Silver	23	No		Red	Zone 1
Anadromous	19-Sep-10	2	645	Male	Spawner	24	No		Red	Zone 1
Anadromous	19-Sep-10	2	600	Male	Spawner	25	No		Red	Zone 1
Anadromous	19-Sep-10	2	550	Male	Spawner	26	No		Red	Zone 1
Anadromous	19-Sep-10	2	425	Male	Spawner	27	No		Red	Zone 1
Anadromous	19-Sep-10	2	540	Male	Spawner	28	No		Red	Zone 1
Anadromous	19-Sep-10	3	485		Silver	29	No		Red	Zone 1
Anadromous	19-Sep-10	3	475		Silver	30	No		Red	Zone 1
Anadromous	19-Sep-10	3	435	Female	Spawner	31	No		Red	Zone 1
Anadromous	19-Sep-10	3	510		Silver	32	No		Red	Zone 1
Anadromous	19-Sep-10	4	460	Female	Spawner	33	No		Red	Zone 1
Anadromous	19-Sep-10	4	380		Silver	34	No		Red	Zone 1
Anadromous	19-Sep-10	4	510		Silver	35	No		Red	Zone 1
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Anadromous	19-Sep-10	4	540	Male	Spawner	36	No
Anadromous	19-Sep-10	4	355		Silver	37	No
Anadromous	19-Sep-10	4	575	Female	Spawner	38	No
Anadromous	19-Sep-10	4	420	Female	Spawner	39	No
Young-of-the year	19-Sep-10	4	65		Immature	No tag	No
Anadromous	19-Sep-10	4	560		Silver	40	No
Anadromous	19-Sep-10	4	470		Silver	41	No
Anadromous	19-Sep-10	4	480		Silver	42	No
Anadromous	19-Sep-10	4	445		Silver	43	No
Anadromous	19-Sep-10	4	435		Silver	44	No
Anadromous	19-Sep-10	4	500	Female	Spawner	45	No
Anadromous	19-Sep-10	4	390		Silver	46	No
Anadromous	19-Sep-10	4	490		Silver	47	No
Anadromous	19-Sep-10	4	435	Female	Spawner	48	No
Anadromous	19-Sep-10	4	400		Silver	49	No
Anadromous	19-Sep-10	4	510		Silver	50	No
Anadromous	19-Sep-10	4	480		Silver	51	No
Anadromous	19-Sep-10	4	455		Silver	52	No
Anadromous	19-Sep-10	4	425	Female	Spawner	53	No
Anadromous	19-Sep-10	4	570		Silver	54	No
Anadromous	19-Sep-10	4	500		Silver	55	No
Anadromous	19-Sep-10	4	465		Silver	56	No
Anadromous	19-Sep-10	4	540		Silver	57	No
Anadromous	19-Sep-10	4	490		Silver	58	No
Anadromous	19-Sep-10	4	490		Silver	59_60	No
Anadromous	19-Sep-10	4	550	Female	Spawner	61	No
Anadromous	19-Sep-10	4	380		Silver	62	No
Anadromous	19-Sep-10	5	555		Silver	63	No
Anadromous	19-Sep-10	5	455		Silver	64	No
Anadromous	19-Sep-10	5	435		Silver	65	No
Anadromous	19-Sep-10	5	500		Silver	66	No
Anadromous	19-Sep-10	5	445		Silver	67	No
Anadromous	19-Sep-10	5	430	Female	Spawner	68	No
Anadromous	19-Sep-10	5	535		Silver	69	No
Anadromous	19-Sep-10	5	540		Silver	70	No
Anadromous	19-Sep-10	5	565		Silver	71	No
Anadromous	19-Sep-10	5	465		Silver	72	No
Anadromous	19-Sep-10	5	490	Male	Spawner	74	No
Anadromous	19-Sep-10	5	455	Female	Spawner	75	No
Anadromous	19-Sep-10	5	540		Silver	76	No
Anadromous	19-Sep-10	5	500		Silver	77	No

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Red	Zone 1
	Zone 1
Red	Zone 1

Anadromous	19-Sep-10	5	415	Female	Spawner	78	No
Anadromous	19-Sep-10	5	475	Female	Spawner	79	No
Anadromous	19-Sep-10	5	450		Silver	80	No
Anadromous	19-Sep-10	5	405		Silver	81	No
Anadromous	19-Sep-10	5	485	Female	Spawner	82	No
Anadromous	19-Sep-10	5	475	Female	Spawner	83	No
Anadromous	19-Sep-10	5	410		Silver	84	No
Anadromous	19-Sep-10	5	370		Silver	85	No
Anadromous	19-Sep-10	5	500		Silver	86	No
Anadromous	19-Sep-10	5	475	Female	Spawner	87	No
Anadromous	19-Sep-10	5	530		Silver	88	No
Anadromous	19-Sep-10	5	530		Silver	89	No
Anadromous	19-Sep-10	5	440		Silver	90	No
Anadromous	19-Sep-10	5	480	Female	Spawner	91	No
Anadromous	19-Sep-10	5	415		Silver	92	No
Anadromous	19-Sep-10	5	480	Female	Spawner	93	No
Anadromous	19-Sep-10	5	440	Female	Spawner	94	No
Anadromous	19-Sep-10	5	370		Silver	95	No
Anadromous	19-Sep-10	5	490		Silver	96	No
Anadromous	19-Sep-10	5	400		Silver	97	No
Anadromous	19-Sep-10	5	405	Male	Spawner	98	No
Anadromous	19-Sep-10	5	480	Female	Spawner	99	No
Anadromous	19-Sep-10	5	425		Silver	100	No
Anadromous	19-Sep-10	5	505	Female	Spawner	101	No
Anadromous	19-Sep-10	5	470	Female	Spawner	102	No
Anadromous	19-Sep-10	5	605		Silver	103	No
Anadromous	19-Sep-10	5	510		Silver	104	No
Anadromous	19-Sep-10	5	445		Silver	105	No
Anadromous	19-Sep-10	5	465	Female	Spawner	106	No
Anadromous	19-Sep-10	5	450		Silver	107	No
Anadromous	19-Sep-10	5	490		Silver	108	No
Anadromous	19-Sep-10	5	470		Silver	109	No
Anadromous	19-Sep-10	5	420		Silver	110	No
Anadromous	19-Sep-10	5	480		Silver	111	No
Anadromous	19-Sep-10	5	510		Silver	112	No
Anadromous	19-Sep-10	5	465	Female	Spawner	113	No
Anadromous	19-Sep-10	5	500	Female	Spawner	114	No
Anadromous	19-Sep-10	5	510		Silver	115	No
Anadromous	19-Sep-10	5	550		Silver	116	No
Anadromous	19-Sep-10	5	485	Female	Spawner	117	No
Anadromous	19-Sep-10	5	465	Female	Spawner	118	No

Red	Zone 1
Red	Zone 1

Anadromous	19-Sep-10	5	430		Silver	119	No		Red	Zone 1
Anadromous	19-Sep-10	5	415		Silver	120	No		Red	Zone 1
Anadromous	19-Sep-10	5	540		Silver	121	No		Red	Zone 1
Anadromous	19-Sep-10	5	420		Silver	122	No		Red	Zone 1
Anadromous	19-Sep-10	5	490	Female	Spawner	123	scar	Posterior ventral	Red	Zone 1
Anadromous	19-Sep-10	5	415	Female	Spawner	124	No		Red	Zone 1
Anadromous	19-Sep-10	5	520		Silver	125	No		Red	Zone 1
Anadromous	19-Sep-10	5	460	Female	Spawner	126	No		Red	Zone 1
Anadromous	19-Sep-10	5	595	Male	Spawner	127	No		Red	Zone 1
Anadromous	19-Sep-10	5	545		Silver	128	No		Red	Zone 1
Anadromous	19-Sep-10	5	465		Silver	129	No		Red	Zone 1
Anadromous	19-Sep-10	5	440	Female	Spawner	130	No		Red	Zone 1
Anadromous	19-Sep-10	5	485		Silver	131	No		Red	Zone 1
Anadromous	19-Sep-10	5	375		Silver	132	No		Red	Zone 1
Anadromous	19-Sep-10	5	425	Female	Spawner	133	No		Red	Zone 1
Anadromous	19-Sep-10	5	525		Silver	134	No		Red	Zone 1
Anadromous	19-Sep-10	5	470	Female	Spawner	135	No		Red	Zone 1
Anadromous	19-Sep-10	5	430		Silver	136	No		Red	Zone 1
Anadromous	19-Sep-10	5	485	Female	Spawner	137	No		Red	Zone 1
Anadromous	19-Sep-10	5	525		Silver	138	No		Red	Zone 1
Anadromous	19-Sep-10	5	490		Silver	139	No		Red	Zone 1
Anadromous	19-Sep-10	5	400		Silver	140	No		Red	Zone 1
Anadromous	19-Sep-10	5	510		Silver	141	No		Red	Zone 1
Anadromous	19-Sep-10	5	515		Silver	142	No		Red	Zone 1
Anadromous	19-Sep-10	5	455	Female	Spawner	143	No		Red	Zone 1
Anadromous	19-Sep-10	5	415		Silver	144	No		Red	Zone 1
Anadromous	19-Sep-10	5	480	Female	Spawner	145	No		Red	Zone 1
Anadromous	19-Sep-10	5	425		Silver	146	No		Red	Zone 1
Anadromous	19-Sep-10	5	465	Female	Spawner	147	No		Red	Zone 1
Anadromous	19-Sep-10	5	430		Silver	148	No		Red	Zone 1
Anadromous	19-Sep-10	5	505	Male	Spawner	149	No		Red	Zone 1
Anadromous	19-Sep-10	5	530	Female	Spawner	150	No		Red	Zone 1
Anadromous	19-Sep-10	5	490	Female	Spawner	151	No		Red	Zone 1
Anadromous	19-Sep-10	5	430		Silver	152	No		Red	Zone 1
Anadromous	19-Sep-10	5	400		Silver	153	No		Red	Zone 1
Anadromous	19-Sep-10	5	560	Male	Spawner	154	No		Red	Zone 1
Anadromous	19-Sep-10	5	560		Silver	155	No		Red	Zone 1
Anadromous	19-Sep-10	5	485	Female	Spawner	156	No		Red	Zone 1
Anadromous	19-Sep-10	5	470	Female	Spawner	157	No		Red	Zone 1
Anadromous	19-Sep-10	5	470		Silver	158	No		Red	Zone 1

Anadromous	19-Sep-10	5	500		Silver	159	No		Red	Zone 1
Anadromous	19-Sep-10	5	490	Female	Spawner	160	No		Red	Zone 1
Anadromous	19-Sep-10	5	500		Silver	161	No		Red	Zone 1
Anadromous	19-Sep-10	5	470		Silver	162	No		Red	Zone 1
Anadromous	19-Sep-10	5	480		Silver	163	No		Red	Zone 1
Anadromous	19-Sep-10	5	475		Silver	164	No		Red	Zone 1
Anadromous	19-Sep-10	5	435		Silver	165	No		Red	Zone 1
Anadromous	19-Sep-10	5	550		Silver	166	No		Red	Zone 1
Anadromous	19-Sep-10	5	475	Female	Spawner	167	No		Red	Zone 1
Anadromous	19-Sep-10	5	550		Silver	168	No		Red	Zone 1
Anadromous	19-Sep-10	5	560		Silver	169	No		Red	Zone 1
Anadromous	19-Sep-10	5	560		Silver	170	No		Red	Zone 1
Anadromous	19-Sep-10	5	535	Female	Spawner	171	No		Red	Zone 1
Anadromous	19-Sep-10	5	425	Female	Spawner	172	No		Red	Zone 1
Anadromous	19-Sep-10	5	545		Silver	173	No		Red	Zone 1
Anadromous	19-Sep-10	5	420	Female	Spawner	174	No		Red	Zone 1
Anadromous	19-Sep-10	5	485	Female	Spawner	175	No		Red	Zone 1
Anadromous	19-Sep-10	5	460	Female	Spawner	176	No		Red	Zone 1
Anadromous	19-Sep-10	5	465	Male	Spawner	177	No		Red	Zone 1
Anadromous	19-Sep-10	5	575		Silver	178	No		Red	Zone 1
Anadromous	19-Sep-10	5	500	Female	Spawner	179	No		Red	Zone 1
Anadromous	19-Sep-10	5	540		Silver	180	No		Red	Zone 1
Anadromous	19-Sep-10	5	530	Male	Spawner	181	No		Red	Zone 1
Anadromous	19-Sep-10	5	530		Silver	182	No		Red	Zone 1
Anadromous	19-Sep-10	5	330		Silver	183	No		Red	Zone 1
Anadromous	19-Sep-10	5	510		Silver	184	No		Red	Zone 1
Anadromous	19-Sep-10	5	420	Female	Spawner	185	No		Red	Zone 1
Anadromous	19-Sep-10	5	620		Silver	186	No		Red	Zone 1
Anadromous	24-Sep-10	6	485	Female	Spawner	188	No		Red	Zone 1
Anadromous	24-Sep-10	6	500	Male	Spawner	189	No		Red	Zone 1
Anadromous	24-Sep-10	6	570	Male	Spawner	190_191	No		Red	Zone 1
Anadromous	24-Sep-10	6	620	Male	Spawner	192	No		Red	Zone 1
Anadromous	24-Sep-10	6	560	Male	Spawner	193	scar	Anterior dorsal	Red	Zone 1
Anadromous	24-Sep-10	6	450	Male	Spawner	194	No		Red	Zone 1
Anadromous	24-Sep-10	6	550	Female	Spawner	195	No		Red	Zone 1
Anadromous	24-Sep-10	6	480	Male	Spawner	196	No		Red	Zone 1
Anadromous	24-Sep-10	6	580	Male	Spawner	197	No		Red	Zone 1
Anadromous	24-Sep-10	6	485	Female	Spawner	198	No		Red	Zone 1
Anadromous	24-Sep-10	6	475	Male	Spawner	199	No		Red	Zone 1
Anadromous	24-Sep-10	6	500	Male	Spawner	200	No		Red	Zone 1

Anadromous	24-Sep-10	6	465	Female	Spawner	202	No
Anadromous	24-Sep-10	6	525	Female	Spawner	203	No
Anadromous	24-Sep-10	6	440	Female	Spawner	204	No
Anadromous	24-Sep-10	6	480	Female	Spawner	205	No
Anadromous	24-Sep-10	6	465	Female	Spawner	206	No
Anadromous	24-Sep-10	6	510	Female	Spawner	201	No
Anadromous	24-Sep-10	7	660	Male	Spawner	207	No
Anadromous	24-Sep-10	7	500	Female	Spawner	208	No
Anadromous	24-Sep-10	7	490	Male	Spawner	209	No
Anadromous	24-Sep-10	7	465	Male	Spawner	210	No
Anadromous	24-Sep-10	7	450	Female	Spawner	211	No
Anadromous	24-Sep-10	7	480	Male	Spawner	212	No
Anadromous	24-Sep-10	8	425		Silver	214	No
Anadromous	24-Sep-10	8	310		Silver	215	No
Anadromous	24-Sep-10	8	345		Silver	216	No
Anadromous	24-Sep-10	8	500		Silver	217	No
Anadromous	24-Sep-10	8	485		Silver	218	No
Anadromous	24-Sep-10	8	315		Silver	219	No
Anadromous	24-Sep-10	8	515		Silver	220	No
Anadromous	24-Sep-10	8	485		Silver	221	No
Anadromous	24-Sep-10	8	325		Silver	222	No
Anadromous	24-Sep-10	9	305		Silver	No tag	No
Anadromous	24-Sep-10	9	285		Silver	No tag	No
Anadromous	24-Sep-10	9	540		Silver	223	No
Anadromous	24-Sep-10	9	390	Female	Spawner	224	No
Anadromous	24-Sep-10	9	455		Silver	225	No
Anadromous	24-Sep-10	9	545		Silver	226	No
Anadromous	24-Sep-10	9	290		Silver	No tag	No
Anadromous	24-Sep-10	9	370		Silver	227	No
Anadromous	24-Sep-10	9	435		Silver	228	No
Anadromous	24-Sep-10	9	340		Silver	229	No
Anadromous	24-Sep-10	9	365		Silver	230	No
Anadromous	24-Sep-10	9	365		Silver	231	No
Anadromous	24-Sep-10	9	300		Silver	No tag	No
Anadromous	24-Sep-10	9	460		Silver	232	No
Anadromous	24-Sep-10	9	420		Silver	233	No
Anadromous	24-Sep-10	9	495		Silver	234	No
Anadromous	24-Sep-10	9	460		Silver	237	No
	04 Cam 40	9	505		Silver	238	No
Anadromous	24-Sep-10	9	303		On vo.		
Anadromous Anadromous	24-Sep-10 24-Sep-10	9	605		Silver	239	No

Red	Zone 1
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	Zone 1 Zone 1
Red	
Red Red	Zone 1 Zone 1 Zone 1
	Zone 1 Zone 1 Zone 1 Zone 1
Red	Zone 1 Zone 1 Zone 1 Zone 1 Zone 1
Red Red	Zone 1 Zone 1 Zone 1 Zone 1
Red Red	Zone 1 Zone 1 Zone 1 Zone 1 Zone 1
Red Red Red	Zone 1 Zone 1 Zone 1 Zone 1 Zone 1 Zone 1
Red Red Red	Zone 1
Red Red Red Red	Zone 1
Red Red Red Red Red Red	Zone 1
Red Red Red Red Red Red Red	Zone 1
Red Red Red Red Red Red Red	Zone 1
Red Red Red Red Red Red Red Red	Zone 1
Red Red Red Red Red Red Red Red	Zone 1
Red Red Red Red Red Red Red Red Red	Zone 1
Red Red Red Red Red Red Red Red Red Red	Zone 1
Red Red Red Red Red Red Red Red Red Red	Zone 1

Red

Zone 1

Anadromous	24-Sep-10	9	430		Silver	241	No		Red	Zone 1
Anadromous	24-Sep-10	9	400		Silver	242	No		Red	Zone 1
Anadromous	24-Sep-10	9	330		Silver	243	No		Red	Zone 1
Anadromous	24-Sep-10	9	305		Silver	No tag	No			Zone 1
Anadromous	24-Sep-10	9	395		Silver	244	No		Red	Zone 1
Anadromous	24-Sep-10	9	370		Silver	245	No		Red	Zone 1
Anadromous	24-Sep-10	9	395		Silver	246	No		Red	Zone 1
Anadromous	24-Sep-10	9	495		Silver	247	No		Red	Zone 1
Anadromous	24-Sep-10	9	380		Silver	248	No		Red	Zone 1
Anadromous	24-Sep-10	9	330		Silver	249	No		Red	Zone 1
Anadromous	24-Sep-10	9	450		Silver	250	No		Red	Zone 1
Anadromous	24-Sep-10	9	315		Silver	251	No		Red	Zone 1
Anadromous	24-Sep-10	9	450		Silver	252	No		Red	Zone 1
Anadromous	24-Sep-10	9	500		Silver	253	No		Red	Zone 1
Anadromous	24-Sep-10	9	435		Silver	254	No		Red	Zone 1
Anadromous	24-Sep-10	9	320		Silver	255	No		Red	Zone 1
Anadromous	24-Sep-10	9	540		Silver	256	No		Red	Zone 1
Anadromous	24-Sep-10	9	565		Silver	257	No		Red	Zone 1
Anadromous	24-Sep-10	9	480		Silver	258	No		Red	Zone 1
Anadromous	24-Sep-10	9	345		Silver	259	No		Red	Zone 1
Anadromous	24-Sep-10	9	290		Silver	No tag	No			Zone 1
Anadromous	24-Sep-10	9	340		Silver	260	No		Red	Zone 1
Anadromous	24-Sep-10	9	445		Silver	261	No		Red	Zone 1
Anadromous	24-Sep-10	9	415		Silver	262	No		Red	Zone 1
Anadromous	24-Sep-10	9	450		Silver	263	No		Red	Zone 1
Anadromous	24-Sep-10	9	355		Silver	264	No		Red	Zone 1
Anadromous	24-Sep-10	9	400		Silver	265	No		Red	Zone 1
Anadromous	24-Sep-10	9	305		Silver	No tag	No			Zone 1
Anadromous	24-Sep-10	9	315		Silver	266	No		Red	Zone 1
Anadromous	24-Sep-10	9	350		Silver	267	No		Red	Zone 1
Anadromous	24-Sep-10	9	280		Silver	No tag	No			Zone 1
Anadromous	24-Sep-10	9	520		Silver	268	No		Red	Zone 1
Anadromous	24-Sep-10	9	305		Silver	No tag	No			Zone 1
Anadromous	24-Sep-10	9	345		Silver	269	No		Red	Zone 1
Anadromous	24-Sep-10	9	470		Silver	270	No		Red	Zone 1
Anadromous	24-Sep-10	9	290		Silver	No tag	No		1100	Zone 1
Anadromous	24-Sep-10	9	295		Silver	No tag	No			Zone 1
Anadromous	24-Sep-10	9	390		Silver	271	No		Red	Zone 1
Anadromous	24-Sep-10	9	355		Silver	272	No		Red	Zone 1
								Anterior		
Anadromous	24-Sep-10	10	710	Male	Spawner	273	wound	dorsal	Red	Zone 1

Anadromous	24-Sep-10	10	545	Male	Spawner	274	No
Anadromous	24-Sep-10	10	600	Male	Spawner	275	No
Anadromous	24-Sep-10	10	535	Female	Spawner	276	No
Anadromous	24-Sep-10	10	555	Male	Spawner	277	No
Anadromous	24-Sep-10	10	575	Male	Spawner	278	No
Anadromous	24-Sep-10	10	465	Female	Spawner	279	No
Anadromous	24-Sep-10	10	480	Female	Spawner	280	No
Anadromous	24-Sep-10	10	530	Male	Spawner	281	No
Anadromous	24-Sep-10	10	535	Female	Spawner	282	No
Anadromous	24-Sep-10	10	295		Silver	No tag	No
Anadromous	24-Sep-10	10	445	Female	Spawner	283	No
Anadromous	24-Sep-10	10	510	Female	Spawner	284	No
Anadromous	24-Sep-10	10	430	Male	Spawner	285	No
Anadromous	24-Sep-10	10	430	Female	Spawner	286	No
Anadromous	24-Sep-10	11	460		Silver	287	No
Anadromous	24-Sep-10	11	530		Silver	288	No
Anadromous	24-Sep-10	11	485	Male	Spawner	289	No
Anadromous	24-Sep-10	11	540		Silver	290	No
Anadromous	24-Sep-10	11	445		Silver	291	No
Anadromous	24-Sep-10	11	480		Silver	292	No
Anadromous	24-Sep-10	11	465		Silver	293	No
Anadromous	24-Sep-10	11	370		Silver	294	No
Anadromous	24-Sep-10	11	535		Silver	295	No
Anadromous	24-Sep-10	11	475		Silver	296	No
Anadromous	24-Sep-10	11	435		Silver	297	No
Anadromous	24-Sep-10	11	465	Female	Spawner	298	No
Anadromous	24-Sep-10	11	500		Silver	299	No
Anadromous	24-Sep-10	11	425		Silver	300	No
Anadromous	24-Sep-10	11	540		Silver	301	No
Anadromous	24-Sep-10	11	470		Silver	302	No
Anadromous	24-Sep-10	11	375		Silver	303	No
Anadromous	24-Sep-10	11	400		Silver	304	No
Anadromous	24-Sep-10	11	405		Silver	305	No
Anadromous	24-Sep-10	11	355		Silver	306	No
Anadromous	24-Sep-10	11	465		Silver	307	No
Anadromous	24-Sep-10	11	540		Silver	308	No
Anadromous	24-Sep-10	11	530	Female	Spawner	309	No
Anadromous	24-Sep-10	11	490		Silver	310	No
Anadromous	24-Sep-10	11	515		Silver	311	No
Anadromous	24-Sep-10	11	420		Silver	312	No
Anadromous	24-Sep-10	11	460	Female	Spawner	313	No

Red	Zone 1
Red	Zone 1
	Zone 1
Red	Zone 1

Anadromous	24-Sep-10	11	320		Silver	314	No		Red	Zone 1
Anadromous	24-Sep-10	11	445	Male	Spawner	315	No		Red	Zone 1
Anadromous	24-Sep-10	11	480	Female	Spawner	316	No		Red	Zone 1
Anadromous	24-Sep-10	11	610	Male	Spawner	317	Scar	Posterior ventral	Red	Zone 1
Anadromous	24-Sep-10	11	460	Female	Spawner	318	No		Red	Zone 1
Anadromous	24-Sep-10	11	485	Female	Spawner	319	No		Red	Zone 1
Anadromous	24-Sep-10	11	460	Female	Spawner	320	No		Red	Zone 1
Anadromous	24-Sep-10	11	435		Silver	321	No		Red	Zone 1
Anadromous	24-Sep-10	11	430		Silver	322	No		Red	Zone 1
Anadromous	24-Sep-10	11	465	Female	Spawner	323	No		Red	Zone 1
Anadromous	24-Sep-10	11	465	Female	Spawner	324	No		Red	Zone 1
Anadromous	24-Sep-10	11	460	Female	Spawner	325	No		Red	Zone 1
Anadromous	24-Sep-10	11	455	Female	Spawner	326	No		Red	Zone 1
Anadromous	24-Sep-10	11	470		Silver	327	No		Red	Zone 1
Anadromous	24-Sep-10	11	500		Silver	328	No		Red	Zone 1
Anadromous	24-Sep-10	11	515	Female	Spawner	329	No		Red	Zone 1
Anadromous	24-Sep-10	11	505		Silver	330	No		Red	Zone 1
Anadromous	24-Sep-10	11	495		Silver	331	No		Red	Zone 1
Anadromous	24-Sep-10	11	335		Silver	332	No		Red	Zone 1
Anadromous	24-Sep-10	11	465		Silver	333	No		Red	Zone 1
Anadromous	24-Sep-10	11	400		Silver	334	No		Red	Zone 1
Anadromous	24-Sep-10	11	490	Female	Spawner	335	No		Red	Zone 1
Anadromous	24-Sep-10	11	325		Silver	336	No		Red	Zone 1
Anadromous	24-Sep-10	11	450		Silver	337	No		Red	Zone 1
Anadromous	24-Sep-10	11	430		Silver	338	No		Red	Zone 1
Anadromous	24-Sep-10	11	475		Silver	339	No		Red	Zone 1
Anadromous	24-Sep-10	11	350		Silver	340	No		Red	Zone 1
Anadromous	24-Sep-10	11	520	Female	Spawner	341	No		Red	Zone 1
Anadromous	24-Sep-10	11	460	Female	Spawner	342	No		Red	Zone 1
Anadromous	24-Sep-10	11	490	Female	Spawner	343	No		Red	Zone 1
Anadromous	24-Sep-10	11	390		Silver	344	No		Red	Zone 1
Anadromous	24-Sep-10	11	410		Silver	345	No		Red	Zone 1
Anadromous	24-Sep-10	11	450		Silver	346	No		Red	Zone 1
Anadromous	24-Sep-10	11	465		Silver	347	No		Red	Zone 1
Anadromous	24-Sep-10	11	415		Silver	348	No		Red	Zone 1
Anadromous	24-Sep-10	11	500	Male	Spawner	349	No		Red	Zone 1
Anadromous	24-Sep-10	11	490		Silver	350	No		Red	Zone 1
Anadromous	24-Sep-10	11	480		Silver	351	No		Red	Zone 1
Anadromous	24-Sep-10	11	300		Silver	No tag	No			Zone 1
Anadromous	24-Sep-10	11	330		Silver	352	No		Red	Zone 1
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Anadromous	24-Sep-10	11	480	Female	Spawner	353	No		Re	
Anadromous	24-Sep-10	11	460	Female	Spawner	354	No		Re	
Anadromous	24-Sep-10	11	470		Silver	355	No		Re	
Anadromous	24-Sep-10	11	400		Silver	356	No		Re	
Anadromous	24-Sep-10	11	280		Silver	No tag	No			Zone 1
Anadromous	24-Sep-10	11	460		Silver	357	No		Re	
Anadromous	24-Sep-10	11	425		Silver	358	No		Re	
Resident	24-Sep-10	11	250	Male	Spawner					Zone 1
Anadromous	24-Sep-10	12	540		Silver	359	No		Re	d Zone 1
Anadromous	24-Sep-10	12	300		Silver	No tag	No			Zone 1
Anadromous	24-Sep-10	13	560		Silver	360	No		Re	d Zone 1
Anadromous	24-Sep-10	13	405	Female	Spawner	361	No		Re	d Zone 1
Anadromous	24-Sep-10	13	545		Silver	362	No		Re	ed Zone 1
Anadromous	24-Sep-10	13	475	Female	Spawner	363	No		Re	ed Zone 1
Anadromous	24-Sep-10	13	450		Silver	364	No		Re	ed Zone 1
Anadromous	24-Sep-10	13	405		Silver	365	No		Re	d Zone 1
Anadromous	24-Sep-10	13	460		Silver	366	No		Re	d Zone 1
Anadromous	24-Sep-10	13	530		Silver	367	No		Re	d Zone 1
Anadromous	24-Sep-10	13	540		Silver	368	No		Re	d Zone 1
Anadromous	24-Sep-10	13	430		Silver	369	No		Re	d Zone 1
Anadromous	26-Sep-10	14	530	Male	Spawner	371	No		Re	d Zone 2
Anadromous	26-Sep-10	14	535		Silver	372	No		Re	d Zone 2
Anadromous	26-Sep-10	15	325		Silver	373	No		Re	d Zone 2
Anadromous	26-Sep-10	15	470	Female	Spawner	374	No		Re	d Zone 2
Anadromous	26-Sep-10	15	515		Silver	375	No		Re	d Zone 2
Anadromous	26-Sep-10	15	505		Silver	376	No		Re	d Zone 2
Anadromous	26-Sep-10	15	460		Silver	377	No		Re	d Zone 2
Anadromous	26-Sep-10	15	475		Silver	378	No		Re	d Zone 2
Anadromous	26-Sep-10	15	535	Female	Spawner	379	No		Re	ed Zone 2
Anadromous	26-Sep-10	15	465		Silver	380	No		Re	ed Zone 2
Anadromous	26-Sep-10	15	370		Silver	381	No		Re	ed Zone 2
Anadromous	26-Sep-10	15	630		Silver	382	No		Re	ed Zone 2
Anadromous	26-Sep-10	15	545		Silver	383	No		Re	ed Zone 2
Anadromous	26-Sep-10	15	440		Silver	384	No		Re	ed Zone 2
Anadromous	26-Sep-10	15	285		Silver	No tag	No			Zone 2
Anadromous	26-Sep-10	15	570		Silver	385	No		Re	
Anadromous	26-Sep-10	15	565		Silver	386	No		Re	
Anadromous	26-Sep-10	15	485	Female	Spawner	387	No		Re	
Anadromous	26-Sep-10	15	345		Silver	388	No		Re	
Anadromous	26-Sep-10	15	575		Silver	389	No		Re	
Anadromous	26-Sep-10	15	555		Silver	390	No		Re	
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Anadromous	26-Sep-10	15	525		Silver	391	No		Red	Zone 2
Anadromous	26-Sep-10	15	565		Silver	392	No		Red	Zone 2
Anadromous	26-Sep-10	15	350		Silver	394	No		Red	Zone 2
Anadromous	26-Sep-10	15	480		Silver	395	No		Red	Zone 2
Anadromous	26-Sep-10	15	535		Silver	396	No		Red	Zone 2
Anadromous	26-Sep-10	15	420		Silver	397	No		Red	Zone 2
Anadromous	26-Sep-10	15	350		Silver	398	No		Red	Zone 2
Anadromous	26-Sep-10	15	550		Silver	399	No		Red	Zone 2
Anadromous	26-Sep-10	15	540		Silver	400	No		Red	Zone 2
Anadromous	26-Sep-10	15	465		Silver	393	No		Red	Zone 2
Anadromous	26-Sep-10	15	460	Female	Spawner	187	No		Red	Zone 2
Anadromous	26-Sep-10	15	450		Silver	213	No		Red	Zone 2
Anadromous	26-Sep-10	15	450	Female	Spawner	401	No		Red	Zone 2
Anadromous	26-Sep-10	15	305		Silver	No tag	No			Zone 2
Anadromous	26-Sep-10	15	375		Silver	402	No		Red	Zone 2
Anadromous	26-Sep-10	15	490		Silver	403	No		Red	Zone 2
Anadromous	26-Sep-10	15	530		Silver	404	No		Red	Zone 2
Anadromous	26-Sep-10	15	510		Silver	405	No		Red	Zone 2
Anadromous	26-Sep-10	15	425	Female	Spawner	406	No		Red	Zone 2
Anadromous	26-Sep-10	16	630	Male	Spawner	407	scar	Anterior dorsal	Red	Zone 2
Anadromous	26-Sep-10	16	430	Male	Spawner	408	No		Red	Zone 2
Anadromous	26-Sep-10	16	465	Male	Spawner	409	No		Red	Zone 2
Anadromous	26-Sep-10	16	420	Female	Spawner	410	No		Red	Zone 2
Anadromous	26-Sep-10	16	495	Male	Spawner	411	No		Red	Zone 2
Anadromous	26-Sep-10	16	500	Female	Spawner	412	No		Red	Zone 2
Anadromous	26-Sep-10	16	555	Male	Spawner	413	No		Red	Zone 2
Anadromous	26-Sep-10	16	335	Male	Spawner	414	No		Red	Zone 2
Anadromous	26-Sep-10	16	610	Female	Spawner	415	No		Red	Zone 2
Anadromous	26-Sep-10	16	475	Female	Spawner	416	No		Red	Zone 2
Anadromous	26-Sep-10	16	580	Male	Spawner	417	No		Red	Zone 2
Anadromous	26-Sep-10	16	480	Female	Spawner	418	No		Red	Zone 2
Anadromous	26-Sep-10	16	500	Female	Spawner	419	No		Red	Zone 2
Anadromous	26-Sep-10	16	495	Male	Spawner	420	No		Red	Zone 2
Anadromous	26-Sep-10	16	570	Female	Spawner	421	No		Red	Zone 2
Anadromous	26-Sep-10	16	470	Female	Spawner	422	No		Red	Zone 2
Anadromous	26-Sep-10	16	440	Female	Spawner	423	No		Red	Zone 2
Anadromous	26-Sep-10	16	460	Female	Spawner	424	No		Red	Zone 2
Anadromous	26-Sep-10	16	475	Female	Spawner	425	No		Red	Zone 2
Anadromous	26-Sep-10	16	490	Male	Spawner	426	No		Red	Zone 2
Resident	26-Sep-10	16	165	Male	Spawner					Zone 2

Life history	Date	Seine #	Fork length (mm)	Sex	Reprod. status	Tag ID	Injury	Injury location	Recapture	Recapture tag ID	Tag colour	Sampling area
Resident	26-Sep-10	16	235	Male	Spawner					_		Zone 2
Resident	26-Sep-10	16	245	Male	Spawner							Zone 2
Resident	26-Sep-10	16	260	Male	Spawner							Zone 2
Anadromous	26-Sep-10	17	555	Male	Spawner	427	No				Red	Zone 2
Anadromous	26-Sep-10	17	435	Female	Spawner	428	No				Red	Zone 2
Anadromous	26-Sep-10	17	500	Male	Spawner	429	No				Red	Zone 2
Freshwater juv.	26-Sep-10	18	190		Immature		No					Zone 2
Anadromous	26-Sep-10	18	480	Female	Spawner	430	No				Red	Zone 2
Anadromous	26-Sep-10	18	570	Male	Spawner	431	No				Red	Zone 2
Anadromous	26-Sep-10	18	510	Female	Spawner	432	No				Red	Zone 2
Anadromous	26-Sep-10	18	535	Female	Spawner	433	No				Red	Zone 2
Anadromous	26-Sep-10	18	550	Female	Spawner	434	No				Red	Zone 2
Anadromous	26-Sep-10	18	470	Female	Spawner	435	No				Red	Zone 2
Anadromous	26-Sep-10	18	580	Female	Spawner	436	No				Red	Zone 2
Anadromous	26-Sep-10	18	465	Female	Spawner	437	No				Red	Zone 2
Anadromous	26-Sep-10	18	485	Male	Spawner	438	No				Red	Zone 2
Anadromous	26-Sep-10	18	520	Female	Spawner	439	No				Red	Zone 2
Anadromous	26-Sep-10	18	505	Male	Spawner	440	No				Red	Zone 2
Anadromous	26-Sep-10	18	470	Female	Spawner	441	No				Red	Zone 2
Anadromous	26-Sep-10	18	460	Male	Spawner	442	No				Red	Zone 2
Anadromous	26-Sep-10	18	475	Female	Spawner	443	No				Red	Zone 2
Anadromous	26-Sep-10	18	520	Female	Spawner	444	No				Red	Zone 2
Anadromous	26-Sep-10	18	470	Female	Spawner	445	No				Red	Zone 2
Anadromous	26-Sep-10	18	565	Male	Spawner	446	No				Red	Zone 2
Anadromous	26-Sep-10	18	470	Female	Spawner	447	No				Red	Zone 2
Resident	26-Sep-10	18	225	Male	Spawner							
Anadromous	19-Sep-11	1	530	Female	Spawner		No		Recapture	45	Red	Zone 1
Anadromous	19-Sep-11	1	550	Female	Spawner	501	No				Grey	Zone 1
Anadromous	19-Sep-11	1	570	Male	Spawner	502	No				Grey	Zone 1
Anadromous	19-Sep-11	1	510	Female	Spawner	503	No				Grey	Zone 1
Anadromous	19-Sep-11	1	485	Female	Spawner	504	No				Grey	Zone 1
Anadromous	19-Sep-11	1	525	Male	Spawner	505	No				Grey	Zone 1
Anadromous	19-Sep-11	1	495	Male	Spawner	506	No				Grey	Zone 1
Anadromous	19-Sep-11	1	360	Male	Spawner	507	No				Grey	Zone 1
Anadromous	19-Sep-11	1	435	Male	Spawner	508	No				Grey	Zone 1
Anadromous	19-Sep-11	1	490		Silver	509	No				Grey	Zone 1
Anadromous	19-Sep-11	1	370		Silver	510	No				Grey	Zone 1
Anadromous	19-Sep-11	2	600		Silver	511	No				Grey	Zone 1
Anadromous	19-Sep-11	2	490	Male	Spawner	512	No				Grey	Zone 1

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Anadromous	19-Sep-11	2	640		Silver	540	No	Recapture	17	Red	Zone 1
Anadromous	19-Sep-11	2	540	Female	Spawner	513	No			Grey	Zone 1
Anadromous	19-Sep-11	2	510	Male .	Spawner	514	No			Grey	Zone 1
Anadromous	19-Sep-11	3	530	Female	Spawner	515	No			Grey	Zone 1
Anadromous	19-Sep-11	3	380		Silver	516	No			Grey	Zone 1
Anadromous	19-Sep-11	3	430		Silver	517	No			Grey	Zone 1
Anadromous	19-Sep-11	3	410		Silver	518	No			Grey	Zone 1
Anadromous	19-Sep-11	3	430	Female	Spawner	519	No			Grey	Zone 1
Anadromous	19-Sep-11	3	480		Silver	520	No			Grey	Zone 1
Anadromous	19-Sep-11	3	470	Female	Spawner		No	Recapture	65	Red	Zone 1
Anadromous	19-Sep-11	3	495	Female	Spawner	521	No			Grey	Zone 1
Anadromous	19-Sep-11	3	440	Male	Spawner	522, 523	No			Grey	Zone 1
Anadromous	19-Sep-11	3	570		Silver	524	No			Grey	Zone 1
Anadromous	19-Sep-11	3	460		Silver	525	No			Grey	Zone 1
Anadromous	19-Sep-11	3	350		Silver	526	No			Grey	Zone 1
Anadromous	19-Sep-11	3	590		Silver	527	No			Grey	Zone 1
Anadromous	19-Sep-11	4	630		Silver	528	No			Grey	Zone 1
Anadromous	19-Sep-11	4	405		Silver	529	No			Grey	Zone 1
Anadromous	19-Sep-11	4	605		Silver	530	No			Grey	Zone 1
Anadromous	19-Sep-11	4	430	Female	Spawner	531	No			Grey	Zone 1
Anadromous	19-Sep-11	4	520		Silver	532	No			Grey	Zone 1
Anadromous	19-Sep-11	4	340		Silver	533	No			Grey	Zone 1
Anadromous	19-Sep-11	4	500	Male	Spawner	534	No			Grey	Zone 1
Anadromous	19-Sep-11	4	475		Silver	535	No			Grey	Zone 1
Anadromous	19-Sep-11	4	525		Silver	536	No			Grey	Zone 1
Anadromous	19-Sep-11	4	585		Silver	537	No			Grey	Zone 1
Anadromous	19-Sep-11	4	400		Silver	538	No			Grey	Zone 1
Anadromous	19-Sep-11	4	395		Silver	539	No			Grey	Zone 1
Anadromous	19-Sep-11	4	610	Male	Spawner	540	No			Grey	Zone 1
Anadromous	19-Sep-11	4	290		Silver	No tag	No				Zone 1
Anadromous	19-Sep-11	4	500		Silver	541	No			Grey	Zone 1
Anadromous	19-Sep-11	4	380		Silver	542	No			Grey	Zone 1
Anadromous	19-Sep-11	4	485	Female	Spawner	543	No			Grey	Zone 1
Anadromous	19-Sep-11	4	380		Silver	544	No			Grey	Zone 1
Anadromous	19-Sep-11	4	560		Silver	545	No			Grey	Zone 1
Anadromous	19-Sep-11	4	500	Female	Spawner	546	No			Grey	Zone 1
Anadromous	19-Sep-11	4	380	Male	Spawner	547	No			Grey	Zone 1
Anadromous	19-Sep-11	4	465	Female	Spawner	548	No			Grey	Zone 1
Anadromous	19-Sep-11	4	535	Female	Spawner	549	No			Grey	Zone 1
Anadromous	19-Sep-11	4	525	Female	Spawner		No	Recapture	284	Red	Zone 1
Anadromous	19-Sep-11	4	470	Female	Spawner	551	No		-	Grey	Zone 1
							-			,	

Life history	Date	Seine #	Fork length (mm)	Sex	Reprod. status	Tag ID	Injury	Injury location	Recapture	Recapture tag ID	Tag colour	Sampling area
Anadromous	19-Sep-11	4	610		Silver	552	No			_	Grey	Zone 1
Anadromous	19-Sep-11	4	280		Silver	No tag	No					Zone 1
Anadromous	19-Sep-11	4	480	Female	Spawner	553	No				Grey	Zone 1
Anadromous	19-Sep-11	4	515	Male	Spawner	554	No				Grey	Zone 1
Anadromous	19-Sep-11	4	525		Silver	555	No				Grey	Zone 1
Anadromous	19-Sep-11	4	295		Silver	No tag	No					Zone 1
Anadromous	19-Sep-11	4	425		Silver	556	No				Grey	Zone 1
Anadromous	19-Sep-11	4	490		Silver	557	No				Grey	Zone 1
Anadromous	19-Sep-11	4	570	Female	Spawner	558	No				Grey	Zone 1
Anadromous	19-Sep-11	4	460	Female	Spawner		No		Recapture	286	Red	Zone 1
Anadromous	19-Sep-11	4	535	Female	Spawner		No		Recapture	387	Red	Zone 1
Anadromous	19-Sep-11	4	510	Male	Spawner	559	No				Grey	Zone 1
Anadromous	19-Sep-11	4	600		Silver	560	No				Grey	Zone 1
Anadromous	19-Sep-11	4	350		Silver	561	No				Grey	Zone 1
Anadromous	19-Sep-11	4	470	Male	Spawner	562	No				Grey	Zone 1
Anadromous	19-Sep-11	4	340		Silver	563	No				Grey	Zone 1
Anadromous	19-Sep-11	4	645		Silver	564	No				Grey	Zone 1
Anadromous	19-Sep-11	4	480		Silver	565	No				Grey	Zone 1
Anadromous	19-Sep-11	4	480	Female	Spawner	566	No				Grey	Zone 1
Anadromous	19-Sep-11	4	300		Silver	567	No				Grey	Zone 1
Anadromous	19-Sep-11	4	375		Silver	568	No				Grey	Zone 1
Anadromous	19-Sep-11	4	395		Silver	569	No				Grey	Zone 1
Anadromous	19-Sep-11	4	650		Silver	570	No				Grey	Zone 1
Anadromous	19-Sep-11	4	280		Silver	No tag	No					Zone 1
Anadromous	19-Sep-11	4	385		Silver	571	No				Grey	Zone 1
Anadromous	19-Sep-11	4	485	Female	Spawner	572	No				Grey	Zone 1
Anadromous	19-Sep-11	4	600	Female	Spawner	573	No				Grey	Zone 1
Anadromous	19-Sep-11	4	420		Silver	574	No				Grey	Zone 1
Anadromous	19-Sep-11	4	400		Silver	575	No				Grey	Zone 1
Anadromous	19-Sep-11	4	295		Silver	No tag	No					Zone 1
Anadromous	19-Sep-11	4	275		Silver	No tag	No					Zone 1
Anadromous	19-Sep-11	4	445		Silver	576	No				Grey	Zone 1
Anadromous	19-Sep-11	4	275		Silver	No tag	No					Zone 1
Anadromous	19-Sep-11	4	365		Silver	577	No				Grey	Zone 1
Anadromous	19-Sep-11	4	405		Silver	578	No				Grey	Zone 1
Anadromous	19-Sep-11	4	370		Silver	579	No				Grey	Zone 1
Anadromous	19-Sep-11	4	555		Silver	580	No				Grey	Zone 1
Anadromous	19-Sep-11	4	530		Silver	581	No				Grey	Zone 1
Anadromous	19-Sep-11	4	550		Silver	582	No				Grey	Zone 1

Anadromous	19-Sep-11	4	465	Female	Spawner	583	No			Grey	Zone 1
Anadromous	19-Sep-11	4	400		Silver	584	No			Grey	Zone 1
Anadromous	19-Sep-11	4	490		Silver		No	Recapture	428	Red	Zone 1
Anadromous	19-Sep-11	5	265		Silver	No tag	No				Zone 1
Anadromous	19-Sep-11	5	300		Silver	No tag	No				Zone 1
Anadromous	19-Sep-11	5	440		Silver	585	No			Grey	Zone 1
Anadromous	19-Sep-11	5	415		Silver	586	No			Grey	Zone 1
Anadromous	19-Sep-11	5	365		Silver	587	No			Grey	Zone 1
Anadromous	19-Sep-11	5	325		Silver	588	No			Grey	Zone 1
Anadromous	19-Sep-11	6	380	Female	Spawner	589	No			Grey	Zone 1
Anadromous	19-Sep-11	6	395		Silver	590	No			Grey	Zone 1
Anadromous	19-Sep-11	6	370		Silver	591	No			Grey	Zone 1
Anadromous	19-Sep-11	6	610		Silver	592	No			Grey	Zone 1
Anadromous	19-Sep-11	7	415		Silver	593	No			Grey	Zone 1
Anadromous	19-Sep-11	7	440		Silver	594	No			Grey	Zone 1
Anadromous	19-Sep-11	7	315		Silver	595	No			Grey	Zone 1
Anadromous	19-Sep-11	7	370		Silver	596	No			Grey	Zone 1
Anadromous	19-Sep-11	7	330		Silver	597	No			Grey	Zone 1
Anadromous	28-Sep-11	8	460	Female	Spawner	598	No			Grey	Zone 1
Anadromous	28-Sep-11	8	450		Silver	599	No			Grey	Zone 1
Anadromous	28-Sep-11	8	290		Silver	600	No			Grey	Zone 1
Anadromous	28-Sep-11	8	270		Silver	No tag	No				Zone 1
Anadromous	28-Sep-11	8	645	Male	Spawner	601	No			Grey	Zone 1
Anadromous	28-Sep-11	8	475	Female	Spawner	602	No			Grey	Zone 1
Anadromous	28-Sep-11	8	595		Silver	603	No			Grey	Zone 1
Anadromous	28-Sep-11	8	500		Silver	604	No			Grey	Zone 1
Anadromous	28-Sep-11	8	595		Silver		No	Recapture	226	Red	Zone 1
Anadromous	28-Sep-11	8	590	Female	Spawner	605	No			Grey	Zone 1
Anadromous	28-Sep-11	8	390		Silver	606	No			Grey	Zone 1
Anadromous	28-Sep-11	8	355		Silver	607	No			Grey	Zone 1
Anadromous	28-Sep-11	8	405		Silver	608	No			Grey	Zone 1
Anadromous	28-Sep-11	8	675		Silver	609	No			Grey	Zone 1
Anadromous	28-Sep-11	8	510		Silver	610	No			Grey	Zone 1
Anadromous	28-Sep-11	8	360		Silver	611	No			Grey	Zone 1
Anadromous	28-Sep-11	8	515	Female	Spawner	612	No			Grey	Zone 1
Anadromous	28-Sep-11	8	545		Silver	613	No			Grey	Zone 1
Anadromous	28-Sep-11	8	455		Silver	614	No			Grey	Zone 1
Anadromous	28-Sep-11	8	510	Female	Spawner	615	No			Grey	Zone 1
Anadromous	28-Sep-11	8	405		Silver	616	No			Grey	Zone 1
Anadromous	28-Sep-11	8	365		Silver	617	No			Grey	Zone 1
Anadromous	28-Sep-11	8	495	Female	Spawner	618	No			Grey	Zone 1

Anadromous	28-Sep-11	8	390		Silver	619	No		Gre	ey Zone 1
Anadromous	28-Sep-11	8	305		Silver	620	No		Gre	ey Zone 1
Anadromous	28-Sep-11	8	485	Female	Spawner	621	No		Gre	ey Zone 1
Anadromous	28-Sep-11	8	385		Silver	622	No		Gre	ey Zone 1
Anadromous	28-Sep-11	8	370		Silver	623	No		Gre	ey Zone 1
Anadromous	28-Sep-11	8	510	Female	Spawner	624	No		Gre	ey Zone 1
Anadromous	28-Sep-11	8	435		Silver	625	No		Gre	ey Zone 1
Anadromous	28-Sep-11	8	610		Silver	626	No		Gre	ey Zone 1
Anadromous	28-Sep-11	8	280		Silver	No tag	No			Zone 1
Anadromous	28-Sep-11	8	610		Silver	627	No		Gre	ey Zone 1
Anadromous	28-Sep-11	8	450	Female	Spawner	628	No		Gre	ey Zone 1
Anadromous	28-Sep-11	8	295		Silver	No tag	No			Zone 1
Anadromous	28-Sep-11	8	275		Silver	No tag	No			Zone 1
Anadromous	28-Sep-11	8	515		Silver	629	No		Gre	ey Zone 1
Anadromous	28-Sep-11	8	445	Female	Spawner	630	No		Gre	y Zone 1
Anadromous	28-Sep-11	8	300		Silver	631	No		Gre	y Zone 1
Anadromous	28-Sep-11	8	385		Silver	632	No		Gre	y Zone 1
Anadromous	28-Sep-11	8	375		Silver	633	No		Gre	y Zone 1
Anadromous	28-Sep-11	8	350		Silver	634	No		Gre	y Zone 1
Anadromous	28-Sep-11	8	490	Female	Spawner	635	No		Gre	y Zone 1
Anadromous	28-Sep-11	8	340		Silver	636	No		Gre	y Zone 1
Anadromous	28-Sep-11	8	500		Silver	637	No		Gre	y Zone 1
Anadromous	28-Sep-11	8	420		Silver	638	No		Gre	y Zone 1
Anadromous	28-Sep-11	8	405	Female	Spawner	639	No		Gre	y Zone 1
Anadromous	28-Sep-11	8	500		Silver	640	No		Gre	y Zone 1
Anadromous	28-Sep-11	8	400		Silver	641	No		Gre	y Zone 1
Anadromous	28-Sep-11	8	540		Silver	642	No		Gre	ey Zone 1
Anadromous	28-Sep-11	8	405		Silver	643	No		Gre	ey Zone 1
Anadromous	28-Sep-11	8	565		Silver	644	No		Gre	ey Zone 1
Anadromous	28-Sep-11	8	425		Silver	645	No		Gre	ey Zone 1
Anadromous	28-Sep-11	8	275		Silver	No tag	No			Zone 1
Anadromous	28-Sep-11	8	380		Silver	646	No		Gre	ey Zone 1
Anadromous	28-Sep-11	8	400		Silver	647	No		Gre	•
Anadromous	28-Sep-11	8	590	Male	Spawner	649	No		Gre	
Anadromous	28-Sep-11	8	280		Silver	No tag	No			Zone 1
Anadromous	28-Sep-11	8	520		Silver	650	No		Gre	ev Zone 1
Anadromous	28-Sep-11	8	405		Silver	651	No		Gre	
Anadromous	28-Sep-11	8	330		Silver	652	No		Gre	
Anadromous	28-Sep-11	8	300		Silver	653	No		Gre	•
Anadromous	28-Sep-11	8	340		Silver	654	No		Gre	•
Anadromous	28-Sep-11	8	430	Female	Spawner	655	No		Gre	•
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Anadromous	28-Sep-11	8	335		Silver	656	No				Grey	Zone 1
Anadromous	28-Sep-11	8	385	Male	Spawner	657	No				Grey	Zone 1
Anadromous	28-Sep-11	8	370		Silver	658	No				Grey	Zone 1
Anadromous	28-Sep-11	8	275		Silver	No tag	No				•	Zone 1
Anadromous	28-Sep-11	9	625		Silver		Scar	Anterior dorsal	Recapture	127	Red	Zone 1
Anadromous	28-Sep-11	9	580		Silver	659	No	30.04 .			Grey	Zone 1
Anadromous	28-Sep-11	9	550	Female	Spawner	660	Scar	Posterior ventral			Grey	Zone 1
Anadromous	28-Sep-11	9	405		Silver	661	No				Grey	Zone 1
Anadromous	28-Sep-11	9	515		Silver	662	No				Grey	Zone 1
Anadromous	28-Sep-11	9	380		Silver	663	No				Grey	Zone 1
Anadromous	28-Sep-11	9	380		Silver	664	No				Grey	Zone 1
Anadromous	28-Sep-11	9	365		Silver	665	No				Grey	Zone 1
Anadromous	28-Sep-11	9	295		Silver	666	No				Grey	Zone 1
Anadromous	28-Sep-11	9	290		Silver	No tag	No				•	Zone 1
Anadromous	28-Sep-11	10	575	Female	Spawner	667	No				Grey	Zone 2
Anadromous	28-Sep-11	10	635	Male	Spawner	668	No				Grey	Zone 2
Anadromous	28-Sep-11	10	475	Male	Spawner	669	No				Grey	Zone 2
Anadromous	28-Sep-11	10	645	Male	Spawner	670	No				Grey	Zone 2
Anadromous	28-Sep-11	10	605	Male	Spawner	671	No				Grey	Zone 2
Anadromous	28-Sep-11	10	580	Female	Spawner	672	No				Grey	Zone 2
Anadromous	28-Sep-11	10	595	Male	Spawner	673	No				Grey	Zone 2
Anadromous	28-Sep-11	10	470	Female	Spawner	674	No				Grev	Zone 2
Anadromous	28-Sep-11	10	260		Silver	No tag	No				,	Zone 2
Anadromous	28-Sep-11	10	595	Female	Spawner	675	No				Grey	Zone 2
Anadromous	28-Sep-11	10	510	Female	Spawner		No		Recapture	415	Red	Zone 2
Anadromous	28-Sep-11	10	290		Silver	No tag	No		·			Zone 2
Anadromous	28-Sep-11	10	520	Male	Spawner	676	No				Grey	Zone 2
Anadromous	28-Sep-11	10	605	Male	Spawner	677	No				Grey	Zone 2
Anadromous	28-Sep-11	10	480	Female	Spawner	678	No				Grey	Zone 2
Anadromous	28-Sep-11	10	520	Female	Spawner	679	No				Grey	Zone 2
Anadromous	28-Sep-11	10	520	Female	Spawner	680	No				Grey	Zone 2
Anadromous	28-Sep-11	10	485	Female	Spawner		No		Recapture	202	Red	Zone 2
Anadromous	28-Sep-11	10	515	Female	Spawner	681	No		·		Grey	Zone 2
Anadromous	28-Sep-11	10	530	Female	Spawner	682	No				Grey	Zone 2
Anadromous	28-Sep-11	10	495	Female	Spawner	683	No				Grey	Zone 2
Anadromous	28-Sep-11	10	565	Male	Spawner	684	No				Grey	Zone 2
Anadromous	28-Sep-11	10	575	Male	Spawner	685	No				Grey	Zone 2
Anadromous	28-Sep-11	10	540	Male	Spawner	686	No				Grey	Zone 2
Anadromous	28-Sep-11	10	495	Female	Spawner	687	No				Grey	Zone 2
Anadromous	28-Sep-11	10	465	Female	Spawner	688	No				Grey	Zone 2
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Anadromous	28-Sep-11	10	555	Female	Spawner	689	No		Grey	Zone 2
Anadromous	28-Sep-11	10	600	Male	Spawner	690	No		Grey	Zone 2
Anadromous	28-Sep-11	10	500	Female	Spawner	691	No		Grey	Zone 2
Anadromous	28-Sep-11	10	500	Male	Spawner	692	No		Grey	Zone 2
Anadromous	28-Sep-11	10	615	Male	Spawner	693	No		Grey	Zone 2
Anadromous	28-Sep-11	10	500	Female	Spawner	694	No		Grey	Zone 2
Anadromous	28-Sep-11	10	525	Female	Spawner	695	No		Grey	Zone 2
Anadromous	28-Sep-11	10	580	Male	Spawner	696	No		Grey	Zone 2
Anadromous	28-Sep-11	10	520	Female	Spawner	697	No		Grey	Zone 2
Anadromous	28-Sep-11	10	510	Female	Spawner	698	No		Grey	Zone 2
Anadromous	28-Sep-11	10	490	Female	Spawner	699	No		Grey	Zone 2
Anadromous	28-Sep-11	10	470	Female	Spawner	700	No		Grey	Zone 2
Anadromous	28-Sep-11	10	280		Silver	No tag	No			Zone 2
Anadromous	28-Sep-11	10	535	Female	Spawner	701	No		Grey	Zone 2
Anadromous	28-Sep-11	10	525	Female	Spawner	702	No		Grey	Zone 2
Anadromous	28-Sep-11	10	500	Female	Spawner	703	No		Grey	Zone 2
Anadromous	28-Sep-11	10	500	Female	Spawner	704	No		Grey	Zone 2
Anadromous	28-Sep-11	10	535	Female	Spawner	705	No		Grey	Zone 2
Anadromous	28-Sep-11	10	545	Male	Spawner	706	No		Grey	Zone 2
Anadromous	28-Sep-11	10	540	Female	Spawner	707	No		Grey	Zone 2
Anadromous	28-Sep-11	10	530	Male	Spawner	708	No		Grey	Zone 2
Anadromous	28-Sep-11	10	585	Male	Spawner	709	No		Grey	Zone 2
Anadromous	28-Sep-11	10	500	Female	Spawner	710	No		Grey	Zone 2
Anadromous	28-Sep-11	10	510	Female	Spawner	711	No		Grey	Zone 2
Anadromous	28-Sep-11	10	600	Male	Spawner	712	No		Grey	Zone 2
Anadromous	28-Sep-11	10	605	Male	Spawner	713	No		Grey	Zone 2
Anadromous	28-Sep-11	10	490	Female	Spawner	714	No		Grey	Zone 2
Anadromous	28-Sep-11	10	430	Female	Spawner	715	No		Grey	Zone 2
Anadromous	28-Sep-11	10	520	Female	Spawner	717	No		Grey	Zone 2
Anadromous	28-Sep-11	10	490	Female	Spawner	718	No		Grey	Zone 2
Anadromous	28-Sep-11	10	475	Female	Spawner	719	No		Grey	Zone 2
Anadromous	28-Sep-11	10	480	Female	Spawner	720	No		Grey	Zone 2
Anadromous	28-Sep-11	10	520	Female	Spawner	721	No		Grey	Zone 2
Anadromous	28-Sep-11	10	525	Female	Spawner	722	No		Grey	Zone 2
Anadromous	28-Sep-11	10	580	Male	Spawner	723	No		Grey	Zone 2
Resident	28-Sep-11	10	270	Male	Spawner					Zone 2
Resident	28-Sep-11	10	190	Male	Spawner					Zone 2
Resident	28-Sep-11	10	185	Male	Spawner					Zone 2
Resident	28-Sep-11	10	260	Male	Spawner					Zone 2
Resident	28-Sep-11	10	285	Male	Spawner					Zone 2
Anadromous	28-Sep-11	11	570	Male	Spawner	724	No		Grey	Zone 2
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Anadromous	28-Sep-11	11	530	Male	Spawner	725	No
Anadromous	28-Sep-11	11	480	Female	Spawner	726	No
Anadromous	28-Sep-11	11	520	Female	Spawner	727	No
Anadromous	28-Sep-11	11	540	Female	Spawner	729	No
Anadromous	28-Sep-11	11	530	Female	Spawner	730	No
Anadromous	28-Sep-11	11	480	Male	Spawner	731	No
Anadromous	28-Sep-11	11	580	Male	Spawner	732	No
Anadromous	28-Sep-11	11	510	Female	Spawner	733	No
Anadromous	28-Sep-11	11	610	Female	Spawner	734	No
Anadromous	28-Sep-11	11	530	Female	Spawner	735	No
Anadromous	28-Sep-11	11	530	Male	Spawner	736	No
Anadromous	28-Sep-11	11	490	Female	Spawner	737	No
Anadromous	28-Sep-11	11	560	Male	Spawner	738	No
Anadromous	28-Sep-11	11	490	Female	Spawner	739	No
Anadromous	28-Sep-11	11	380	Male	Spawner	740	No
Anadromous	28-Sep-11	11	605	Male	Spawner	741	No
Anadromous	28-Sep-11	11	490	Female	Spawner	742	No
Anadromous	28-Sep-11	11	505	Female	Spawner	743	No
Anadromous	28-Sep-11	11	460	Female	Spawner	744	No
Anadromous	28-Sep-11	11	520	Female	Spawner	746	No
Anadromous	28-Sep-11	11	510	Male	Spawner	747	No
Anadromous	28-Sep-11	11	480	Female	Spawner	748	No
Anadromous	28-Sep-11	11	635	Male	Spawner	749	No
Anadromous	28-Sep-11	11	385	Male	Spawner	750	No
Anadromous	28-Sep-11	11	485	Male	Spawner	751	No
Anadromous	28-Sep-11	11	550	Male	Spawner	752	No
Anadromous	28-Sep-11	11	540	Female	Spawner	753	No
Anadromous	28-Sep-11	11	620	Male	Spawner	754	No
Anadromous	28-Sep-11	11	525	Female	Spawner	755	No
Anadromous	28-Sep-11	11	530	Female	Spawner	756	No
Anadromous	28-Sep-11	11	455	Female	Spawner	757	No
Anadromous	28-Sep-11	11	420	Male	Spawner	758	No
Anadromous	28-Sep-11	11	615	Male	Spawner	759	No
Anadromous	28-Sep-11	11	530	Female	Spawner	760	No
Freshwater juv.	28-Sep-11	11	190		Immature		No
Anadromous	28-Sep-11	11	450	Female	Spawner	761	No
Anadromous	28-Sep-11	11	345	Male	Spawner	762	No
Anadromous	28-Sep-11	11	490	Female	Spawner	763	No
Anadromous	21-Sep-12	2	600	Male	Spawner	1064	No
Anadromous	21-Sep-12	2	450	Female	Spawner	1065	No
Anadromous	21-Sep-12	2	480	Female	Spawner	1066	No

Grey	Zone 2
Grey	Zone 2
	Zone 2
Grey	Zone 2
Grey	Zone 2
Grey	Zone 2
Brown	Zone 1
Brown	Zone 1
Brown	Zone 1

Anadromous	21-Sep-12	2	390		Silver	1067	No			Brown	Zone 1
Anadromous	21-Sep-12	2	440		Silver	1068	No			Brown	Zone 1
Anadromous	21-Sep-12	2	465		Silver	1069	No			Brown	Zone 1
Anadromous	21-Sep-12	2	530	Female	Spawner	1070	No			Brown	Zone 1
Anadromous	21-Sep-12	2	490		Silver	1071	No			Brown	Zone 1
Anadromous	21-Sep-12	2	450	Female	Spawner	1072	No			Brown	Zone 1
Anadromous	21-Sep-12	2	410		Silver	1073	No			Brown	Zone 1
Anadromous	21-Sep-12	2	370		Silver	1074	No			Brown	Zone 1
Anadromous	21-Sep-12	2	380		Silver	1075	No			Brown	Zone 1
Anadromous	21-Sep-12	2	615	Female	Spawner	1076	No			Brown	Zone 1
Anadromous	21-Sep-12	2	565	Female	Spawner	1077	No			Brown	Zone 1
Anadromous	21-Sep-12	2	515	Female	Spawner	1078	No			Brown	Zone 1
Anadromous	21-Sep-12	2	450		Silver	1079	No			Brown	Zone 1
Anadromous	21-Sep-12	2	520	Female	Spawner	1080	No			Brown	Zone 1
Anadromous	21-Sep-12	2	410		Silver	1081	No			Brown	Zone 1
Anadromous	21-Sep-12	2	390		Silver	1082	No			Brown	Zone 1
Anadromous	21-Sep-12	2	470	Female	Spawner	1083	No			Brown	Zone 1
Anadromous	21-Sep-12	2	480		Silver	1084	No			Brown	Zone 1
Anadromous	21-Sep-12	2	395	Female	Spawner	1085	No			Brown	Zone 1
Anadromous	21-Sep-12	2	390		Silver	1086	No			Brown	Zone 1
Anadromous	21-Sep-12	2	525		Silver	1087	No			Brown	Zone 1
Anadromous	21-Sep-12	2	385		Silver	1088	No			Brown	Zone 1
Anadromous	21-Sep-12	2	640	Male	Spawner	1089	No			Brown	Zone 1
Anadromous	21-Sep-12	2	510		Silver	1090	No			Brown	Zone 1
Anadromous	21-Sep-12	2	460		Silver	1091	No			Brown	Zone 1
Anadromous	21-Sep-12	2	580	Male	Spawner		No	Recapture	380	Red	Zone 1
Anadromous	21-Sep-12	2	500		Silver	1092	No			Brown	Zone 1
Anadromous	21-Sep-12	2	410		Silver	1093	No			Brown	Zone 1
Anadromous	21-Sep-12	2	380		Silver	1094	No			Brown	Zone 1
Anadromous	21-Sep-12	2	465		Silver	1095	No			Brown	Zone 1
Anadromous	21-Sep-12	2	500	Female	Spawner	1096	No			Brown	Zone 1
Anadromous	21-Sep-12	2	560		Silver	1097	No			Brown	Zone 1
Anadromous	21-Sep-12	2	430	Female	Spawner	1098	No			Brown	Zone 1
Anadromous	21-Sep-12	2	490	Female	Spawner	1099	No			Brown	Zone 1
Anadromous	21-Sep-12	3	500		Silver	1100	No			Brown	Zone 1
Anadromous	21-Sep-12	3	465		Silver	1101	No			Brown	Zone 1
Anadromous	21-Sep-12	3	350		Silver	1102	No			Brown	Zone 1
Anadromous	21-Sep-12	3	490		Silver	1103	No			Brown	Zone 1
Anadromous	21-Sep-12	3	470		Silver	1104	No			Brown	Zone 1
Anadromous	21-Sep-12	3	490	Male	Spawner	1105	No			Brown	Zone 1
Anadromous	21-Sep-12	3	390		Silver	1106	No			Brown	Zone 1

Anadromous	21-Sep-12	3	465		Silver	1107	No
Anadromous	21-Sep-12	3	420		Silver	1108	No
Anadromous	21-Sep-12	3	460	Female	Spawner	1109	No
Anadromous	21-Sep-12	3	410	Female	Spawner	1110	No
Anadromous	21-Sep-12	3	620		Silver	1111	No
Anadromous	21-Sep-12	3	390		Silver	1112	No
Anadromous	21-Sep-12	3	510		Silver	1113	No
Anadromous	21-Sep-12	3	365		Silver	1114	No
Anadromous	21-Sep-12	3	435		Silver	1115	No
Anadromous	21-Sep-12	3	385		Silver	1116	No
Anadromous	21-Sep-12	3	430		Silver	1117	No
Anadromous	21-Sep-12	3	480		Silver	1118	No
Anadromous	21-Sep-12	3	385		Silver	1119	No
Anadromous	21-Sep-12	3	450		Silver	1120	No
Anadromous	21-Sep-12	3	530		Silver	1121	No
Anadromous	21-Sep-12	3	490	Male	Spawner	1122	No
Anadromous	21-Sep-12	3	430		Silver	1123	No
Anadromous	21-Sep-12	3	385		Silver	1124	No
Anadromous	21-Sep-12	3	560		Silver	1125	No
Anadromous	21-Sep-12	3	460		Silver	1126	No
Anadromous	21-Sep-12	3	585		Silver	1127	No
Anadromous	21-Sep-12	3	480		Silver	1128	No
Anadromous	21-Sep-12	3	540	Female	Spawner	1129	No
Anadromous	21-Sep-12	3	500	Female	Spawner	1130	No
Anadromous	21-Sep-12	3	515		Silver	1131	No
Anadromous	21-Sep-12	3	530	Female	Spawner	1132	No
Anadromous	21-Sep-12	3	430		Silver	1133	No
Anadromous	21-Sep-12	3	340		Silver	1134	No
Anadromous	21-Sep-12	3	360		Silver	1135	No
Anadromous	21-Sep-12	3	375		Silver	1136	No
Anadromous	21-Sep-12	3	395		Silver	1137	No
Anadromous	21-Sep-12	3	440		Silver	1138	No
Anadromous	21-Sep-12	3	465	Male	Spawner	1139	No
Anadromous	21-Sep-12	3	505		Silver	1140	No
Anadromous	21-Sep-12	3	540		Silver	1141	No
Anadromous	21-Sep-12	3	460		Silver	1142	No
Anadromous	21-Sep-12	3	505		Silver	1143	No
Anadromous	21-Sep-12	3	295		Silver	No tag	No
Anadromous	21-Sep-12	3	605		Silver	1144	No
Anadromous	21-Sep-12	3	610		Silver	1145	No
Anadromous	21-Sep-12	3	590		Silver	1146	No

Brown	Zone 1
Brown	Zone 1
	Zone 1
Brown	Zone 1
Brown	Zone 1
Brown	Zone 1

Anadromous	21-Sep-12	3	470		Silver	1147	Scar	Anterior ventral			Brown	Zone 1
Anadromous	21-Sep-12	3	510		Silver	1148	No	ventiai			Brown	Zone 1
Anadromous	21-Sep-12	3	410		Silver	1149	No				Brown	Zone 1
Anadromous	21-Sep-12	3	490		Silver	1150	No				Brown	Zone 1
Anadromous	21-Sep-12	3	510		Silver	1151	No				Brown	Zone 1
Anadromous	21-Sep-12	3	370		Silver	1152	No				Brown	Zone 1
Anadromous	21-Sep-12	3	385		Silver	1153	No				Brown	Zone 1
Anadromous	21-Sep-12	3	390		Silver	1154	No				Brown	Zone 1
Anadromous	21-Sep-12	3	400		Silver	1155	No				Brown	Zone 1
Anadromous	21-Sep-12	3	510		Silver	1156	No				Brown	Zone 1
Anadromous	21-Sep-12	3	480		Silver	1157	No				Brown	Zone 1
Anadromous	21-Sep-12	3	535	Male	Spawner	1158	No				Brown	Zone 1
Anadromous	21-Sep-12	3	355	Male	Spawner	1159	No				Brown	Zone 1
Anadromous	21-Sep-12	3	380	Maio	Silver	1160	No				Brown	Zone 1
Anadromous	21-Sep-12	3	410		Silver	1161	No				Brown	Zone 1
Anadromous	21-Sep-12	3	450		Silver	1162	No				Brown	Zone 1
Anadromous	21-Sep-12	3	490	Female	Spawner	1163	No				Brown	Zone 1
Anadromous	21-Sep-12	3	560		Silver	1164	No				Brown	Zone 1
Anadromous	21-Sep-12	3	660		Silver		No		Recapture	671	Grey	Zone 1
Anadromous	21-Sep-12	3	705		Silver	1165	No		. to capta. c	0	Brown	Zone 1
Anadromous	21-Sep-12	3	380		Silver	1166	No				Brown	Zone 1
Anadromous	21-Sep-12	3	465	Female	Spawner	1167	No				Brown	Zone 1
Anadromous	21-Sep-12	3	500		Silver	1168	No				Brown	Zone 1
Anadromous	21-Sep-12	3	510	Female	Spawner	1169	No				Brown	Zone 1
Anadromous	21-Sep-12	3	510	Female	Spawner	1170	No				Brown	Zone 1
Anadromous	21-Sep-12	3	450		Silver	1171	No				Brown	Zone 1
Anadromous	21-Sep-12	3	480	Female	Spawner	1172	Wound	Anterior dorsal			Brown	Zone 1
Anadromous	21-Sep-12	3	460		Silver	1173	No	40.04.			Brown	Zone 1
Anadromous	21-Sep-12	3	425		Silver	1174	No				Brown	Zone 1
Anadromous	21-Sep-12	3	390		Silver	1175	No				Brown	Zone 1
Anadromous	21-Sep-12	3	385		Silver	1176	No				Brown	Zone 1
Anadromous	21-Sep-12	3	470	Female	Spawner		No		Recapture	651	Grey	Zone 1
Anadromous	21-Sep-12	3	395		Silver	1177	No				Brown	Zone 1
Anadromous	21-Sep-12	3	540	Female	Spawner	1178	No				Brown	Zone 1
Anadromous	21-Sep-12	3	485		Silver	1179	No				Brown	Zone 1
Anadromous	21-Sep-12	3	445	Male	Spawner	1180	No				Brown	Zone 1
Anadromous	21-Sep-12	3	425		Silver	1181	No				Brown	Zone 1
Anadromous	21-Sep-12	3	510	Male	Spawner	1182	No				Brown	Zone 1
Anadromous	21-Sep-12	3	515	Female	Spawner	1183	No				Brown	Zone 1
Anadromous	21-Sep-12	3	430		Silver	1184	No				Brown	Zone 1
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Anadromous	21-Sep-12	3	405		Silver	1185	No			Brown	Zone 1
Anadromous	21-Sep-12	3	510		Silver	1186	No			Brown	Zone 1
Anadromous	21-Sep-12	3	350		Silver	1187	No			Brown	Zone 1
Anadromous	21-Sep-12	3	545	Female	Spawner		No	Recapture	114	Red	Zone 1
Anadromous	21-Sep-12	3	415		Silver	1188	No			Brown	Zone 1
Anadromous	21-Sep-12	3	410		Silver	1189	No			Brown	Zone 1
Anadromous	21-Sep-12	3	330		Silver	1190	No			Brown	Zone 1
Anadromous	21-Sep-12	3	415		Silver	1191	No			Brown	Zone 1
Anadromous	21-Sep-12	3	570		Silver	1192	No			Brown	Zone 1
Anadromous	21-Sep-12	3	405		Silver	1193	No			Brown	Zone 1
Anadromous	21-Sep-12	3	340		Silver	1194	No			Brown	Zone 1
Anadromous	21-Sep-12	3	315		Silver	1195	No			Brown	Zone 1
Anadromous	21-Sep-12	3	430	Female	Spawner	1196	No			Brown	Zone 1
Anadromous	21-Sep-12	3	475		Silver	1197	No			Brown	Zone 1
Anadromous	21-Sep-12	3	410		Silver	1198	No			Brown	Zone 1
Anadromous	21-Sep-12	3	360		Silver	1199	No			Brown	Zone 1
Anadromous	21-Sep-12	3	400		Silver	1200	No			Brown	Zone 1
Anadromous	21-Sep-12	3	425		Silver	1201	No			Brown	Zone 1
Anadromous	21-Sep-12	3	380		Silver	1202	No			Brown	Zone 1
Anadromous	21-Sep-12	3	380		Silver	1203	No			Brown	Zone 1
Anadromous	21-Sep-12	3	410		Silver	1204	No			Brown	Zone 1
Resident	21-Sep-12	3	370	Female	Spawner						Zone 1
Resident	21-Sep-12	3	230	Male	Spawner						Zone 1
Anadromous	21-Sep-12	4	500		Silver	1205	No			Brown	Zone 1
Anadromous	21-Sep-12	4	390		Silver	1206	No			Brown	Zone 1
Anadromous	21-Sep-12	4	385		Silver	1207	No			Brown	Zone 1
Anadromous	21-Sep-12	4	355		Silver	1208	No			Brown	Zone 1
Anadromous	21-Sep-12	4	390		Silver	1209	No			Brown	Zone 1
Anadromous	21-Sep-12	4	340		Silver	1210	No			Brown	Zone 1
Anadromous	21-Sep-12	4	665		Silver	1211	No			Brown	Zone 1
Anadromous	21-Sep-12	4	455		Silver	1212	No			Brown	Zone 1
Anadromous	21-Sep-12	4	455		Silver	1213	No			Brown	Zone 1
Anadromous	21-Sep-12	4	395		Silver	1214	No			Brown	Zone 1
Anadromous	21-Sep-12	4	400		Silver	1215	No			Brown	Zone 1
Anadromous	21-Sep-12	4	350		Silver	1216	No			Brown	Zone 1
Anadromous	21-Sep-12	4	415		Silver	1217	No			Brown	Zone 1
Anadromous	21-Sep-12	4	500		Silver	1218	No			Brown	Zone 1
Anadromous	21-Sep-12	4	410		Silver	1219	No			Brown	Zone 1
Anadromous	21-Sep-12	4	335	Male	Spawner	1220	No			Brown	Zone 1
Anadromous	21-Sep-12	4	400		Silver	1221	No			Brown	Zone 1
Anadromous	21-Sep-12	4	280		Silver	No tag	No				Zone 1
	- r				-	- 3					

Anadromous	21-Sep-12	4	325		Silver	1222	No				Brown	Zone 1
Anadromous	21-Sep-12	4	390		Silver	1223	No				Brown	Zone 1
Anadromous	21-Sep-12	4	390		Silver	1224	No				Brown	Zone 1
Anadromous	21-Sep-12	4	435		Silver	1225	No				Brown	Zone 1
Anadromous	21-Sep-12	4	290		Silver	No tag	No					Zone 1
Anadromous	21-Sep-12	4	470		Silver	1226	No				Brown	Zone 1
Anadromous	21-Sep-12	5	690	Male	Spawner		No		Recapture	192	Red	Zone 2
Anadromous	21-Sep-12	5	560	Female	Spawner	1227	No				Brown	Zone 2
Anadromous	21-Sep-12	5	630	Male	Spawner	1228	No				Brown	Zone 2
Anadromous	21-Sep-12	5	475	Female	Spawner	1229	No				Brown	Zone 2
Anadromous	21-Sep-12	5	495	Female	Spawner	1230	No				Brown	Zone 2
Anadromous	21-Sep-12	5	480	Female	Spawner	1231	No				Brown	Zone 2
Anadromous	21-Sep-12	5	540	Female	Spawner	1232	No				Brown	Zone 2
Anadromous	21-Sep-12	5	575	Female	Spawner	1233	No				Brown	Zone 2
Anadromous	21-Sep-12	5	515	Female	Spawner	1234	No				Brown	Zone 2
Anadromous	21-Sep-12	5	585	Female	Spawner	1235	No				Brown	Zone 2
Anadromous	21-Sep-12	5	630	Male	Spawner	1236	No				Brown	Zone 2
Anadromous	21-Sep-12	6	685	Male	Spawner	1237	No				Brown	Zone 2
Anadromous	21-Sep-12	6	540	Female	Spawner	1238	No				Brown	Zone 2
Anadromous	21-Sep-12	6	615	Female	Spawner	1239	No				Brown	Zone 2
Anadromous	21-Sep-12	6	440	Male	Spawner	1240	No				Brown	Zone 2
Anadromous	21-Sep-12	6	650	Male	Spawner	1241	No				Brown	Zone 2
Anadromous	21-Sep-12	6	480	Male	Spawner	1242	No				Brown	Zone 2
Anadromous	21-Sep-12	6	645	Male	Spawner	1243	No				Brown	Zone 2
Anadromous	21-Sep-12	6	570	Female	Spawner		No		Recapture	682	Grey	Zone 2
Anadromous	21-Sep-12	6	505	Female	Spawner	1244	No				Brown	Zone 2
Anadromous	21-Sep-12	6	520	Female	Spawner	1245	No				Brown	Zone 2
Anadromous	21-Sep-12	6	620	Male	Spawner	1246	No				Brown	Zone 2
Anadromous	21-Sep-12	6	500	Female	Spawner	1247	No				Brown	Zone 2
Anadromous	21-Sep-12	6	625	Male	Spawner	1248	No				Brown	Zone 2
Anadromous	21-Sep-12	6	635	Male	Spawner	1249	No				Brown	Zone 2
Anadromous	21-Sep-12	6	520	Female	Spawner	1250	No				Brown	Zone 2
Anadromous	21-Sep-12	6	510	Male	Spawner	1251	Scar	Posterior			Brown	Zone 2
Anadromous	21-Sep-12	6	555	Male	Spawner	1252	No	dorsal			Brown	Zone 2
Anadromous	21-Sep-12	6	665	Male	Spawner	1253	No				Brown	Zone 2
Anadromous	21-Sep-12	6	620	Male	Spawner	1254	No				Brown	Zone 2
Anadromous	21-Sep-12	6	640	Male	Spawner	1255	No				Brown	Zone 2
Anadromous	21-Sep-12	6	530	Male	Spawner	1256	No				Brown	Zone 2
Anadromous	21-Sep-12	6	640	Male	Spawner	1257	No				Brown	Zone 2
Anadromous	21-Sep-12	6	580	Male	Spawner	1258	No				Brown	Zone 2
, maaronious	21 00p-12	J	300	Maic	Opawiici	1200	140				Diowii	20110 2

Anadromous	21-Sep-12	6	580	Female	Spawner	1260	No			Brown	Zone 2
Anadromous	21-Sep-12	6	525	Female	Spawner	1259	No			Brown	Zone 2
Anadromous	21-Sep-12	6	565	Male	Spawner		No	Recapture	725	Grey	Zone 2
Anadromous	21-Sep-12	6	545	Female	Spawner		No	Recapture	698	Grey	Zone 2
Resident	21-Sep-12	6	260	Male	Spawner						Zone 2
Resident	21-Sep-12	6	230	Male	Spawner						Zone 2
Resident	21-Sep-12	6	280	Male	Spawner						Zone 2
Resident	21-Sep-12	6	280	Male	Spawner						Zone 2
Anadromous	22-Sep-12	7	450		Silver	1261	No			Brown	Zone 1
Anadromous	22-Sep-12	7	380		Silver	1262	No			Brown	Zone 1
Anadromous	22-Sep-12	7	505		Silver	1263	No			Brown	Zone 1
Anadromous	22-Sep-12	7	505	Male	Spawner	1264	No			Brown	Zone 1
Anadromous	22-Sep-12	7	365		Silver	1265	No			Brown	Zone 1
Anadromous	22-Sep-12	7	475	Female	Spawner	1266	No			Brown	Zone 1
Anadromous	22-Sep-12	7	605	Male	Spawner	1267	No			Brown	Zone 1
Anadromous	22-Sep-12	7	505		Silver	1268	No			Brown	Zone 1
Anadromous	22-Sep-12	7	470	Female	Spawner	1269	No			Brown	Zone 1
Anadromous	22-Sep-12	7	560	Male	Spawner	1270	No			Brown	Zone 1
Anadromous	22-Sep-12	7	435		Silver	1271	No			Brown	Zone 1
Anadromous	22-Sep-12	7	435	Male	Spawner	1272	No			Brown	Zone 1
Anadromous	22-Sep-12	7	530	Female	Spawner	1273	No			Brown	Zone 1
Anadromous	22-Sep-12	7	635	Male	Spawner	1274	No			Brown	Zone 1
Anadromous	22-Sep-12	7	325		Silver	1275	No			Brown	Zone 1
Anadromous	22-Sep-12	7	380		Silver	1276	No			Brown	Zone 1
Anadromous	22-Sep-12	7	405	Male	Spawner	1277	No			Brown	Zone 1
Anadromous	22-Sep-12	7	360		Silver	1278	No			Brown	Zone 1
Anadromous	22-Sep-12	7	350		Silver	1279	No			Brown	Zone 1
Anadromous	22-Sep-12	7	545	Female	Spawner	1280	No			Brown	Zone 1
Anadromous	22-Sep-12	7	405		Silver	1281	No			Brown	Zone 1
Anadromous	22-Sep-12	7	430		Silver	1282	No			Brown	Zone 1
Anadromous	22-Sep-12	7	350		Silver	1283	No			Brown	Zone 1
Anadromous	22-Sep-12	7	395		Silver	1284	No			Brown	Zone 1
Anadromous	22-Sep-12	7	320		Silver	1285	No			Brown	Zone 1
Anadromous	22-Sep-12	7	385		Silver	1286	No			Brown	Zone 1
Anadromous	22-Sep-12	8	555	Male	Spawner	1287	No			Brown	Zone 1
Anadromous	22-Sep-12	8	490		Silver	1288	No			Brown	Zone 1
Anadromous	22-Sep-12	8	510		Silver	1289	No			Brown	Zone 1
Anadromous	22-Sep-12	8	675		Silver	1290	No			Brown	Zone 1
Anadromous	22-Sep-12	8	505		Silver	1291	No			Brown	Zone 1
Anadromous	22-Sep-12	8	490		Silver	1292	No			Brown	Zone 1
Anadromous	22-Sep-12	8	380	Male	Spawner	1293	No			Brown	Zone 1

Anadromous	22-Sep-12	8	490		Silver	1294	No
Anadromous	22-Sep-12	8	485		Silver	1295	No
Anadromous	22-Sep-12	8	650		Silver	1296	No
Anadromous	22-Sep-12	8	550		Silver	1297	No
Anadromous	22-Sep-12	8	405		Silver	1298	No
Anadromous	22-Sep-12	8	490		Silver	1299	No
Anadromous	22-Sep-12	8	610	Female	Spawner	1300	No
Anadromous	22-Sep-12	8	415		Silver	1301	No
Anadromous	22-Sep-12	8	510	Female	Spawner	1302	No
Anadromous	22-Sep-12	8	360		Silver	1303	No
Anadromous	22-Sep-12	8	565	Female	Spawner	1304	No
Anadromous	22-Sep-12	8	440		Silver	1305	No
Anadromous	22-Sep-12	8	400		Silver	1306	No
Anadromous	22-Sep-12	8	380		Silver	1307	No
Anadromous	22-Sep-12	8	375		Silver	1308	No
Anadromous	22-Sep-12	8	320		Silver	1309	No
Anadromous	22-Sep-12	8	415	Female	Spawner	1310	No
Anadromous	22-Sep-12	8	375		Silver	1311	No
Anadromous	22-Sep-12	9	410		Silver	No tag	No
Anadromous	22-Sep-12	9	380		Silver	1312	No
Anadromous	22-Sep-12	10	650	Female	Spawner	1313	No
Anadromous	22-Sep-12	10	525	Female	Spawner	1314	No
Anadromous	22-Sep-12	10	480	Male	Spawner	1315	No
Anadromous	22-Sep-12	10	625	Female	Spawner	1316	No
Anadromous	22-Sep-12	10	545	Female	Spawner	1317	No
Anadromous	22-Sep-12	10	535	Female	Spawner	1318	No
Anadromous	22-Sep-12	10	305		Silver	No tag	No
Anadromous	22-Sep-12	10	530	Female	Spawner	1319	No
Anadromous	22-Sep-12	10	450	Male	Spawner	1320	No
Anadromous	22-Sep-12	10	445	Female	Spawner	1321	No
Anadromous	22-Sep-12	10	565	Female	Spawner	1322	No
Anadromous	22-Sep-12	10	540	Female	Spawner	1323	No
Anadromous	22-Sep-12	10	560	Female	Spawner	1324	No
Anadromous	22-Sep-12	10	540	Female	Spawner	1325	No
Anadromous	22-Sep-12	10	600	Female	Spawner	1326	No
Anadromous	22-Sep-12	10	530	Female	Spawner	1327	No
Anadromous	22-Sep-12	10	655	Male	Spawner	1328	No
Anadromous	22-Sep-12	11	660	Male	Spawner	1329	No
Anadromous	22-Sep-12	11	475	Male	Spawner	1330	No
Anadromous	22-Sep-12	11	535	Female	Spawner	1331	No
Anadromous	22-Sep-12	11	700	Male	Spawner	1332	No

Brown	Zone 1
Brown	Zone 1
	Zone 1
Brown	Zone 1
Brown	Zone 2
	Zone 2
Brown	Zone 2

Anadromous	22-Sep-12	11	560	Female	Spawner	1333	No			Brown	Zone 2
Anadromous	22-Sep-12	11	680	Male	Spawner	1334	No			Brown	Zone 2
Anadromous	22-Sep-12	11	665	Male	Spawner	1335	No			Brown	Zone 2
Anadromous	22-Sep-12	11	490	Female	Spawner	1336	No			Brown	Zone 2
Anadromous	22-Sep-12	11	490	Female	Spawner	1337	No			Brown	Zone 2
Anadromous	22-Sep-12	11	540	Female	Spawner	1338	No			Brown	Zone 2
Anadromous	22-Sep-12	11	550	Male	Spawner	1339	No			Brown	Zone 2
Anadromous	22-Sep-12	11	505	Female	Spawner	1340	No			Brown	Zone 2
Anadromous	22-Sep-12	11	360		Silver	1341	No			Brown	Zone 2
Anadromous	22-Sep-12	11	540	Female	Spawner	1342	No			Brown	Zone 2
Anadromous	22-Sep-12	11	680	Male	Spawner	1343	No			Brown	Zone 2
Resident	22-Sep-12	11	180	Male	Spawner						Zone 2
Resident	22-Sep-12	11	200	Male	Spawner						Zone 2
Anadromous	22-Sep-12	12	340	Male	Spawner	1344	No			Brown	Zone 2
Anadromous	22-Sep-12	12	445	Male	Spawner	1345	No			Brown	Zone 2
Anadromous	22-Sep-12	12	465	Female	Spawner	1346	No			Brown	Zone 2
Anadromous	22-Sep-12	12	450	Male	Spawner	1347	No			Brown	Zone 2
Anadromous	22-Sep-12	12	530	Female	Spawner	1348	No			Brown	Zone 2
Anadromous	22-Sep-12	12	520	Female	Spawner	1349	No			Brown	Zone 2
Anadromous	22-Sep-12	12	540	Female	Spawner	1350	No			Brown	Zone 2
Anadromous	22-Sep-12	12	650	Male	Spawner		No	Recapture	659	Grey	Zone 2
Anadromous	22-Sep-12	12	540	Female	Spawner	1351	No	·		Brown	Zone 2
Anadromous	22-Sep-12	12	570	Female	Spawner	1352	No			Brown	Zone 2
Anadromous	22-Sep-12	12	550	Female	Spawner	1353	No			Brown	Zone 2
Anadromous	22-Sep-12	12	500	Female	Spawner	1354	No			Brown	Zone 2
Resident	22-Sep-12	12	280	Male	Spawner						Zone 2
Resident	22-Sep-12	12	260	Male	Spawner						Zone 2
Resident	22-Sep-12	12	240	Male	Spawner						Zone 2
Resident	22-Sep-12	12	200	Male	Spawner						Zone 2
Resident	22-Sep-12	12	235	Male	Spawner						Zone 2
Anadromous	22-Sep-12	13	475	Female	Spawner	1355	No			Brown	Zone 2
Anadromous	22-Sep-12	13	470	Male	Spawner	1356	No			Brown	Zone 2
Anadromous	22-Sep-12	13	320		Silver	1357	No			Brown	Zone 2
Anadromous	22-Sep-12	13	550	Female	Spawner	1358	No			Brown	Zone 2
Anadromous	22-Sep-12	13	625	Male	Spawner	1359	No			Brown	Zone 2
Anadromous	22-Sep-12	13	520	Female	Spawner	1360	No			Brown	Zone 2
Anadromous	22-Sep-12	13	560	Female	Spawner	1361	No			Brown	Zone 2
Anadromous	22-Sep-12	13	560	Female	Spawner	1362	No			Brown	Zone 2
Anadromous	22-Sep-12	13	595	Female	Spawner	1363	No			Brown	Zone 2
Anadromous	22-Sep-12	13	355		Silver	1364	No			Brown	Zone 2
Anadromous	22-Sep-12	13	280		Silver	No tag	No			2.5	Zone 2
	OOP 12	.5	200		0	. to tag	1.10				20.10 2

Anadromous	22-Sep-12	13	555	Female	Spawner	1365	No				Brown	Zone 2
Anadromous	22-Sep-12	13	565	Female	Spawner	1366	No				Brown	Zone 2
Anadromous	22-Sep-12	13	670	Male	Spawner	1367	No				Brown	Zone 2
Anadromous	22-Sep-12	13	555	Female	Spawner	1368	No				Brown	Zone 2
Anadromous	22-Sep-12	13	560	Female	Spawner	1369	No				Brown	Zone 2
Anadromous	22-Sep-12	13	465	Female	Spawner	1370	No				Brown	Zone 2
Anadromous	22-Sep-12	13	415	Male	Spawner	1371	No				Brown	Zone 2
Anadromous	22-Sep-12	13	530	Female	Spawner	1372	No				Brown	Zone 2
Anadromous	22-Sep-12	13	700	Male	Spawner	1373	No				Brown	Zone 2
Anadromous	22-Sep-12	13	600	Female	Spawner	1374	No				Brown	Zone 2
Anadromous	22-Sep-12	13	645	Male	Spawner	1375	No				Brown	Zone 2
Anadromous	22-Sep-12	13	480	Female	Spawner	1376	No				Brown	Zone 2
Anadromous	22-Sep-12	13	580	Female	Spawner		No		Recapture	769	Grey	Zone 2
Anadromous	22-Sep-12	13	425	Male	Spawner	1377	No				Brown	Zone 2
Anadromous	22-Sep-12	13	570	Male	Spawner	1378	No				Brown	Zone 2
Anadromous	22-Sep-12	13	650	Male	Spawner	1379	No				Brown	Zone 2
Anadromous	22-Sep-12	13	500	Female	Spawner	1380	No				Brown	Zone 2
Anadromous	22-Sep-12	13	550	Female	Spawner	1381	No				Brown	Zone 2
Anadromous	22-Sep-12	13	490	Female	Spawner	1382	No				Brown	Zone 2
Anadromous	22-Sep-12	13	550	Male	Spawner		No		Recapture	199	Red	Zone 2
Anadromous	22-Sep-12	13	500	Female	Spawner	1383	No				Brown	Zone 2
Anadromous	22-Sep-12	13	660	Male	Spawner	1384	No				Brown	Zone 2
Anadromous	22-Sep-12	13	625	Male	Spawner	1385	No				Brown	Zone 2
Anadromous	22-Sep-12	13	570	Female	Spawner		No		Recapture	729	Grey	Zone 2
Anadromous	22-Sep-12	13	540	Female	Spawner	1386	Scar	Posterior ventral			Brown	Zone 2
Anadromous	22-Sep-12	13	575	Male	Spawner	1387	Scar	Anterior dorsal			Brown	Zone 2
Anadromous	22-Sep-12	13	500	Female	Spawner	1389	No				Brown	Zone 2
Anadromous	22-Sep-12	13	590	Female	Spawner	1390	No				Brown	Zone 2
Anadromous	22-Sep-12	13	660	Male	Spawner	1391	No				Brown	Zone 2
Anadromous	22-Sep-12	13	650	Male	Spawner	1392	No				Brown	Zone 2
Anadromous	22-Sep-12	13	330		Silver	1393	No				Brown	Zone 2
Anadromous	22-Sep-12	13	640	Male	Spawner	1394	No				Brown	Zone 2
Anadromous	22-Sep-12	13	645	Male	Spawner	1395	No				Brown	Zone 2
Anadromous	22-Sep-12	13	560	Male	Spawner	1396	No				Brown	Zone 2
Anadromous	22-Sep-12	13	515	Female	Spawner	1397	No				Brown	Zone 2
Anadromous	22-Sep-12	13	610	Male	Spawner	1398	No				Brown	Zone 2
Anadromous	22-Sep-12	13	510	Female	Spawner	1399	No				Brown	Zone 2
Anadromous	22-Sep-12	13	630	Female	Spawner	1400	No				Brown	Zone 2
Anadromous	22-Sep-12	13	530	Female	Spawner	1388	No				Brown	Zone 2
Anadromous	22-Sep-12	13	430	Male	Spawner	1401	No				Brown	Zone 2
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Anadromous 22-Sep-12 13 290 Silver No tag No Anadromous 22-Sep-12 14 630 Male Spawner 1402 No Brown Anadromous 22-Sep-12 14 520 Male Spawner 1403 No Brown Anadromous 22-Sep-12 14 675 Male Spawner 1404 No Brown Anadromous 22-Sep-12 14 570 Female Spawner 1405 No Brown Anadromous 22-Sep-12 14 660 Male Spawner 1406 No Brown Anadromous 22-Sep-12 14 650 Male Spawner 1407 No Brown Anadromous 22-Sep-12 14 530 Female Spawner 1408 No Brown	Zone 2
Anadromous 22-Sep-12 14 520 Male Spawner 1403 No Brown Anadromous 22-Sep-12 14 675 Male Spawner 1404 No Brown Anadromous 22-Sep-12 14 570 Female Spawner 1405 No Brown Anadromous 22-Sep-12 14 660 Male Spawner 1406 No Brown Anadromous 22-Sep-12 14 650 Male Spawner 1407 No Brown	Zone 2
Anadromous 22-Sep-12 14 675 Male Spawner 1404 No Brown Anadromous 22-Sep-12 14 570 Female Spawner 1405 No Brown Anadromous 22-Sep-12 14 660 Male Spawner 1406 No Brown Anadromous 22-Sep-12 14 650 Male Spawner 1407 No Brown	Zone 2
Anadromous 22-Sep-12 14 570 Female Spawner 1405 No Brown Anadromous 22-Sep-12 14 660 Male Spawner 1406 No Brown Anadromous 22-Sep-12 14 650 Male Spawner 1407 No Brown	Zone 2
Anadromous 22-Sep-12 14 660 Male Spawner 1406 No Brown Anadromous 22-Sep-12 14 650 Male Spawner 1407 No Brown	Zone 2
Anadromous 22-Sep-12 14 650 Male Spawner 1407 No Brown	Zone 2
	Zone 2
Alladionious 22-3ep-12 14 330 Female Spawner 1400 No	Zone 2 Zone 2 Zone 2 Zone 2 Zone 2 Zone 2
Anadromous 22-Sep-12 14 505 Female Spawner 1409 No Brown	Zone 2 Zone 2 Zone 2 Zone 2
Anadromous 22-Sep-12 14 470 Female Spawner 1410 No Brown	Zone 2 Zone 2 Zone 2
·	Zone 2 Zone 2
·	Zone 2
Anadromous 22-Sep-12 14 610 Male Spawner 1412 No Brown Anadromous 22-Sep-12 14 455 Female Spawner 1413 No Brown	
Anadromous 22-Sep-12 14 435 Female Spawier 1413 No Brown Anadromous 22-Sep-12 14 530 Silver 1414 No Brown	ZOHE Z
·	7000 0
Anadromous 22-Sep-12 14 585 Male Spawner 1415 No Brown Anadromous 22-Sep-12 14 420 Silver 1416 No Brown	Zone 2
·	Zone 2
Anadromous 22-Sep-12 14 650 Male Spawner 1417 No Brown	Zone 2
Anadromous 22-Sep-12 14 495 Male Spawner 1418 No Brown	Zone 2
Anadromous 22-Sep-12 14 490 Female Spawner 1419 No Brown	Zone 2
Anadromous 22-Sep-12 14 440 Female Spawner 1420 No Brown	Zone 2
Anadromous 22-Sep-12 14 440 Female Spawner 1421 No Brown	Zone 2
Anadromous 22-Sep-12 14 360 Silver 1422 No Brown	Zone 2
Anadromous 22-Sep-12 14 670 Male Spawner 1423 No Brown	Zone 2
Anadromous 22-Sep-12 14 630 Male Spawner 1424 No Brown	Zone 2
Anadromous 22-Sep-12 14 570 Male Spawner 1425 Scar Posterior ventral Brown	Zone 2
Anadromous 22-Sep-12 14 555 Female Spawner 1426 No Brown	Zone 2
Anadromous 22-Sep-12 14 500 Female Spawner 1427 No Brown	Zone 2
Anadromous 22-Sep-12 14 470 Male Spawner 1428 No Brown	Zone 2
Anadromous 22-Sep-12 14 560 Female Spawner 1429 No Brown	Zone 2
Anadromous 22-Sep-12 14 480 Female Spawner 1430 No Brown	Zone 2
Anadromous 22-Sep-12 14 655 Male Spawner 1431 No Brown	Zone 2
Anadromous 22-Sep-12 14 440 Silver 1432 No Brown	Zone 2
Anadromous 22-Sep-12 14 555 Male Spawner 1433 No Brown	Zone 2
Anadromous 22-Sep-12 14 520 Female Spawner 1434 No Brown	Zone 2
Anadromous 22-Sep-12 14 615 Silver 1435 No Brown	Zone 2
Anadromous 22-Sep-12 14 520 Female Spawner 1436 No Brown	Zone 2
Anadromous 22-Sep-12 14 560 Female Spawner 1437 No Brown	Zone 2
Anadromous 22-Sep-12 14 535 Female Spawner 1438 No Brown	Zone 2
Anadromous 22-Sep-12 14 390 Female Spawner 1439 No Brown	Zone 2
Anadromous 22-Sep-12 14 530 Male Spawner 1440 No Brown	Zone 2

Anadromous	22-Sep-12	14	650	Male	Spawner	1441	No			Brown	Zone 2
Anadromous	22-Sep-12	14	535	Female	Spawner		No	Recapture	742	Grey	Zone 2
Anadromous	22-Sep-12	14	510	Female	Spawner	1442	No			Brown	Zone 2
Anadromous	22-Sep-12	14	575	Female	Spawner	1443	No			Brown	Zone 2
Anadromous	22-Sep-12	14	670	Male	Spawner	1444	No			Brown	Zone 2
Anadromous	22-Sep-12	14	380		Silver	1445	No			Brown	Zone 2
Anadromous	22-Sep-12	14	620	Male	Spawner	1446	No			Brown	Zone 2
Anadromous	22-Sep-12	14	540	Female	Spawner	1447	No			Brown	Zone 2
Anadromous	22-Sep-12	14	555	Male	Spawner	1448	No			Brown	Zone 2
Anadromous	22-Sep-12	14	670	Male	Spawner	1449	No			Brown	Zone 2
Anadromous	22-Sep-12	14	535	Female	Spawner	1450	No			Brown	Zone 2
Anadromous	22-Sep-12	14	705	Male	Spawner	1451	No			Brown	Zone 2
Anadromous	22-Sep-12	14	520	Female	Spawner	1452	No			Brown	Zone 2
Anadromous	22-Sep-12	14	420		Silver	1453	No			Brown	Zone 2
Anadromous	22-Sep-12	14	555	Male	Spawner	1454	No			Brown	Zone 2
Anadromous	22-Sep-12	14	370		Silver	1455	No			Brown	Zone 2
Anadromous	22-Sep-12	14	560	Female	Spawner		No	Recapture	403	Red	Zone 2
Anadromous	22-Sep-12	14	550	Female	Spawner	1456	No			Brown	Zone 2
Anadromous	22-Sep-12	14	540	Female	Spawner	1457	No			Brown	Zone 2
Anadromous	22-Sep-12	14	385	Male	Spawner	1458	No			Brown	Zone 2
Anadromous	22-Sep-12	14	640	Male	Spawner	1459	No			Brown	Zone 2
Anadromous	22-Sep-12	14	560	Female	Spawner	1460	No			Brown	Zone 2
Anadromous	22-Sep-12	14	645	Male	Spawner	1461	No			Brown	Zone 2
Anadromous	22-Sep-12	14	500	Female	Spawner		No	Recapture	757	Grey	Zone 2
Anadromous	22-Sep-12	14	510	Female	Spawner	1462	No			Brown	Zone 2
Anadromous	22-Sep-12	14	665	Male	Spawner	1463	No			Brown	Zone 2
Anadromous	22-Sep-12	14	490	Male	Spawner	1464	No			Brown	Zone 2
Anadromous	22-Sep-12	14	590	Male	Spawner	1465	No			Brown	Zone 2
Anadromous	22-Sep-12	14	450	Female	Spawner	1466	No			Brown	Zone 2
Anadromous	22-Sep-12	14	625	Male	Spawner	1467	No			Brown	Zone 2
Anadromous	22-Sep-12	14	390		Silver	1468	No			Brown	Zone 2
Anadromous	22-Sep-12	14	505	Female	Spawner	1469	No			Brown	Zone 2
Anadromous	22-Sep-12	14	455		Silver	1470	No			Brown	Zone 2
Anadromous	22-Sep-12	14	470	Male	Spawner	1471	No			Brown	Zone 2
Anadromous	22-Sep-12	14	385		Silver	1472	No			Brown	Zone 2
Anadromous	22-Sep-12	14	570	Female	Spawner	1474	No			Brown	Zone 2
Anadromous	22-Sep-12	14	520	Female	Spawner	1475	No			Brown	Zone 2
Anadromous	22-Sep-12	14	370	Male	Spawner	1473	No			Brown	Zone 2
Anadromous	22-Sep-12	14	330		Silver	1476	No			Brown	Zone 2
Anadromous	22-Sep-12	14	530	Female	Spawner	1477	No			Brown	Zone 2
Anadromous	22-Sep-12	14	510	Female	Spawner	1478	No			Brown	Zone 2

Anadromous	22-Sep-12	14	680	Male	Spawner	1479	No			Brown	Zone 2
Anadromous	22-Sep-12	14	470	Female	Spawner	1480	No			Brown	Zone 2
Anadromous	22-Sep-12	14	280		Silver	No tag	No				Zone 2
Freshwater juv.	22-Sep-12	15	185		Immature		No				Zone 3
Resident	22-Sep-12	15	210	Male	Spawner						Zone 3
Resident	22-Sep-12	15	275	Male	Spawner						Zone 3
Resident	22-Sep-12	15	235	Male	Spawner						Zone 3
Resident	22-Sep-12	15	225	Male	Spawner						Zone 3
Resident	22-Sep-12	15	225	Male	Spawner						Zone 3
Resident	22-Sep-12	15	260	Male	Spawner						Zone 3
Resident	22-Sep-12	15	240	Male	Spawner						Zone 3
Resident	22-Sep-12	15	200	Male	Spawner						Zone 3
Freshwater juv.	22-Sep-12	16	175		Immature		No				Zone 3
Anadromous	22-Sep-12	16	560	Male	Spawner	1481	No			Brown	Zone 3
Anadromous	22-Sep-12	16	630	Male	Spawner	1482	No			Brown	Zone 3
Anadromous	22-Sep-12	16	520	Female	Spawner	1483	No			Brown	Zone 3
Anadromous	22-Sep-12	16	540	Female	Spawner	1484	No			Brown	Zone 3
Anadromous	22-Sep-12	16	530	Female	Spawner		No	Recapture	718	Grey	Zone 3
Anadromous	22-Sep-12	16	580	Female	Spawner	1485	No			Brown	Zone 3
Anadromous	22-Sep-12	16	540	Male	Spawner	1486	No			Brown	Zone 3
Anadromous	22-Sep-12	16	540	Female	Spawner	1487	No			Brown	Zone 3
Anadromous	22-Sep-12	16	635	Female	Spawner	1488	No			Brown	Zone 3
Anadromous	22-Sep-12	16	595	Male	Spawner	1489	No			Brown	Zone 3
Anadromous	22-Sep-12	16	430	Male	Spawner	1490	No			Brown	Zone 3
Anadromous	22-Sep-12	16	550	Male	Spawner		No	Recapture	520	Grey	Zone 3
Anadromous	22-Sep-12	16	540	Female	Spawner	1491	No			Brown	Zone 3
Anadromous	22-Sep-12	16	410	Male	Spawner	1492	No			Brown	Zone 3
Anadromous	22-Sep-12	16	540	Female	Spawner	1493	No			Brown	Zone 3
Anadromous	22-Sep-12	16	510	Female	Spawner	1494	No			Brown	Zone 3
Anadromous	22-Sep-12	16	410	Male	Spawner	1495	No			Brown	Zone 3
Anadromous	22-Sep-12	16	625	Male	Spawner	1496	No			Brown	Zone 3
Anadromous	22-Sep-12	16	610	Male	Spawner	1497	No			Brown	Zone 3
Anadromous	22-Sep-12	16	605	Male	Spawner		No	Recapture	524	Grey	Zone 3
Anadromous	22-Sep-12	16	595	Male	Spawner	1498	No			Brown	Zone 3
Anadromous	22-Sep-12	16	570	Male	Spawner	1499	No			Brown	Zone 3
Anadromous	22-Sep-12	16	540	Female	Spawner	1500	No			Brown	Zone 3
Anadromous	22-Sep-12	16	530	Female	Spawner		No				Zone 3
Anadromous	22-Sep-12	16	480	Female	Spawner		No				Zone 3
Anadromous	22-Sep-12	16	475	Female	Spawner		No				Zone 3
Anadromous	22-Sep-12	16	450	Female	Spawner		No				Zone 3
Anadromous	22-Sep-12	16	685	Male	Spawner		No				Zone 3

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Anadromous	22-Sep-12	16	630	Male	Spawner		No				Zone 3
Anadromous	22-Sep-12	16	540	Female	Spawner		No				Zone 3
Anadromous	22-Sep-12	16	575	Male	Spawner		No				Zone 3
Anadromous	22-Sep-12	16	570	Female	Spawner		No	_			Zone 3
Anadromous	22-Sep-12	16	670	Male	Spawner		No	Recapture	552	Grey	Zone 3
Anadromous	22-Sep-12	16	635	Male	Spawner		No				Zone 3
Anadromous	22-Sep-12	16	340	Male	Spawner		No				Zone 3
Anadromous	23-Sep-13	1	480	Male	Spawner	1501	No			Red	Zone 1
Anadromous	23-Sep-13	1	680	Male	Spawner	1502	No			Red	Zone 1
Anadromous	23-Sep-13	1	510	Female	Spawner	1503	No			Red	Zone 1
Anadromous	23-Sep-13	1	555	Female	Spawner	1504	No			Red	Zone 1
Anadromous	23-Sep-13	1	550		Silver	1505	No			Red	Zone 1
Anadromous	23-Sep-13	1	550	Male	Spawner	1506	No			Red	Zone 1
Anadromous	23-Sep-13	1	580	Female	Spawner	1507	No			Red	Zone 1
Anadromous	23-Sep-13	1	550	Female	Spawner	1508	No			Red	Zone 1
Anadromous	23-Sep-13	1	515	Male	Spawner	1509	No			Red	Zone 1
Anadromous	23-Sep-13	1	585	Female	Spawner		No	Recapture	1374	Brown	Zone 1
Anadromous	23-Sep-13	1	665		Silver		No	Recapture	1030	Brown	Zone 1
Anadromous	23-Sep-13	1	435	Male	Spawner	1510	No			Red	Zone 1
Anadromous	23-Sep-13	1	580	Female	Spawner	1511	No			Red	Zone 1
Anadromous	23-Sep-13	1	300		Silver		No				Zone 1
Anadromous	23-Sep-13	1	570	Female	Spawner	1512	No			Red	Zone 1
Anadromous	23-Sep-13	1	650	Male	Spawner	1513	No			Red	Zone 1
Anadromous	23-Sep-13	1	540	Female	Spawner	1514	No			Red	Zone 1
Anadromous	23-Sep-13	1	620	Male	Spawner	1515	No			Red	Zone 1
Anadromous	23-Sep-13	1	475	Female	Spawner	1516	No			Red	Zone 1
Anadromous	23-Sep-13	1	635	Male	Spawner		No	Recapture	1144	Brown	Zone 1
Anadromous	23-Sep-13	1	530	Female	Spawner	1517	No			Red	Zone 1
Anadromous	23-Sep-13	1	630		Silver	1518	No			Red	Zone 1
Anadromous	23-Sep-13	1	380		Silver	1519	No			Red	Zone 1
Anadromous	23-Sep-13	1	530	Female	Spawner	1520	No			Red	Zone 1
Anadromous	23-Sep-13	1	375		Silver	1521	No			Red	Zone 1
Anadromous	23-Sep-13	1	645	Male	Spawner	1522	No			Red	Zone 1
Anadromous	23-Sep-13	1	555	Male	Spawner	1523	No			Red	Zone 1
Anadromous	23-Sep-13	1	650	Male	Spawner		No	Recapture	1111	Brown	Zone 1
Anadromous	23-Sep-13	1	380		Silver	1524	No	·		Red	Zone 1
Anadromous	23-Sep-13	1	570		Silver	1525	No			Red	Zone 1
Anadromous	23-Sep-13	1	555	Male	Spawner	1526	No			Red	Zone 1
Anadromous	23-Sep-13	1	490	Male	Spawner	1527	No			Red	Zone 1
Anadromous	23-Sep-13	1	350	Male	Spawner	1528	No			Red	Zone 1
Anadromous	23-Sep-13	1	360	Male	Spawner	1529	No			Red	Zone 1
					1		-				

Anadromous	23-Sep-13	1	550	Female	Spawner	1530	No			Red	Zone 1
Anadromous	23-Sep-13	1	570	Male	Spawner	1531	No			Red	Zone 1
Anadromous	23-Sep-13	1	680	Male	Spawner		No	Recapture	1296	Brown	Zone 1
Anadromous	23-Sep-13	1	525	Male	Spawner	1532	No			Red	Zone 1
Anadromous	23-Sep-13	1	360		Silver	1533	No			Red	Zone 1
Anadromous	23-Sep-13	1	505	Female	Spawner	1534	No			Red	Zone 1
Anadromous	23-Sep-13	1	555	Female	Spawner	1535	No			Red	Zone 1
Anadromous	23-Sep-13	1	575	Female	Spawner	1536	No			Red	Zone 1
Anadromous	23-Sep-13	1	675	Male	Spawner	1537	No			Red	Zone 1
Anadromous	23-Sep-13	1	310		Silver	1538	No			Red	Zone 1
Anadromous	23-Sep-13	1	440	Male	Spawner	1539	No			Red	Zone 1
Anadromous	23-Sep-13	1	575	Female	Spawner	1540	No			Red	Zone 1
Anadromous	23-Sep-13	1	545		Silver	1541	No			Red	Zone 1
Anadromous	23-Sep-13	1	545	Female	Spawner	1542	No			Red	Zone 1
Anadromous	23-Sep-13	1	500	Female	Spawner	1543	No			Red	Zone 1
Anadromous	23-Sep-13	1	540	Female	Spawner	1544	No			Red	Zone 1
Anadromous	23-Sep-13	1	495		Silver	1545	No			Red	Zone 1
Anadromous	23-Sep-13	2	430	Female	Spawner	1546	No			Red	Zone 1
Anadromous	23-Sep-13	2	540	Female	Spawner	1547	No			Red	Zone 1
Anadromous	23-Sep-13	2	495		Silver	1548	No			Red	Zone 1
Anadromous	23-Sep-13	2	585		Silver		No	Recapture	697	Grey	Zone 1
Anadromous	23-Sep-13	2	490	Female	Spawner	1549	No			Red	Zone 1
Anadromous	23-Sep-13	2	510	Male	Spawner	1550	No			Red	Zone 1
Anadromous	23-Sep-13	2	605	Female	Spawner	1551	No			Red	Zone 1
Anadromous	23-Sep-13	2	670		Silver		No	Recapture	1050	Brown	Zone 1
Anadromous	23-Sep-13	2	485	Female	Spawner	1552	No			Red	Zone 1
Anadromous	23-Sep-13	2	500	Female	Spawner		No	Recapture	365	Red	Zone 1
Anadromous	23-Sep-13	2	470	Female	Spawner	1553	No			Red	Zone 1
Anadromous	23-Sep-13	2	485	Female	Spawner	1554	No			Red	Zone 1
Anadromous	23-Sep-13	2	555		Silver	1555	No			Red	Zone 1
Anadromous	23-Sep-13	2	470		Silver	1556	No			Red	Zone 1
Anadromous	23-Sep-13	2	555	Female	Spawner	1557	No			Red	Zone 1
Anadromous	23-Sep-13	2	675	Male	Spawner	1558	No			Red	Zone 1
Anadromous	23-Sep-13	2	495	Male	Spawner	1559	No			Red	Zone 1
Anadromous	23-Sep-13	2	515	Male	Spawner		No	Recapture	1058	Brown	Zone 1
Anadromous	23-Sep-13	2	610	Male	Spawner	1560	No			Red	Zone 1
Anadromous	23-Sep-13	2	425	Female	Spawner	1561	No			Red	Zone 1
Anadromous	23-Sep-13	2	595		Silver	1562	No			Red	Zone 1
Anadromous	23-Sep-13	2	360	Male	Spawner	1563	No			Red	Zone 1
Anadromous	23-Sep-13	2	550	Male	Spawner	1564	No			Red	Zone 1
Anadromous	23-Sep-13	2	455	Female	Spawner	1565	No			Red	Zone 1

Anadromous	23-Sep-13	2	600		Silver	1566	Wound	Anterior ventral			Red	Zone 1
Anadromous	23-Sep-13	2	405		Silver	1567	No				Red	Zone 1
Anadromous	23-Sep-13	2	670	Male	Spawner	1568	No				Red	Zone 1
Anadromous	23-Sep-13	2	580		Silver	1569	No				Red	Zone 1
Anadromous	23-Sep-13	2	560	Female	Spawner	1570	No				Red	Zone 1
Anadromous	23-Sep-13	2	455		Silver	1571	No				Red	Zone 1
Anadromous	23-Sep-13	2	540	Male	Spawner		No		Recapture	1156	Brown	Zone 1
Anadromous	23-Sep-13	2	410	Male	Spawner	1572	No				Red	Zone 1
Anadromous	23-Sep-13	2	515	Female	Spawner		No		Recapture	1247	Brown	Zone 1
Anadromous	23-Sep-13	2	540	Female	Spawner		No		Recapture	637	Grey	Zone 1
Anadromous	23-Sep-13	2	430		Silver	1573	No				Red	Zone 1
Anadromous	23-Sep-13	2	560	Female	Spawner		No		Recapture	1001	Brown	Zone 1
Anadromous	23-Sep-13	2	475		Silver	1574	No				Red	Zone 1
Anadromous	23-Sep-13	2	565		Silver		No		Recapture	512	Grey	Zone 1
Anadromous	23-Sep-13	2	415	Female	Spawner	1575	No				Red	Zone 1
Anadromous	23-Sep-13	2	380		Silver	1576	No				Red	Zone 1
Anadromous	23-Sep-13	2	445	Male	Spawner	1577	No				Red	Zone 1
Anadromous	23-Sep-13	2	650	Male	Spawner	1578	No				Red	Zone 1
Anadromous	23-Sep-13	2	465	Male	Spawner	1579	No				Red	Zone 1
Anadromous	23-Sep-13	2	540	Female	Spawner	1580	No				Red	Zone 1
Anadromous	23-Sep-13	2	510	Male	Spawner		No		Recapture	1315	Brown	Zone 1
Anadromous	23-Sep-13	2	520	Female	Spawner	1581	No				Red	Zone 1
Anadromous	23-Sep-13	2	430	Female	Spawner	1582	No				Red	Zone 1
Anadromous	23-Sep-13	2	430	Female	Spawner	1583	No				Red	Zone 1
Resident	23-Sep-13	2	265	Male	Spawner							Zone 1
Anadromous	23-Sep-13	3	440		Silver	1584	No				Red	Zone 1
Anadromous	23-Sep-13	3	480	Male	Spawner	1585	No				Red	Zone 1
Anadromous	23-Sep-13	3	440		Silver	1586	No				Red	Zone 1
Anadromous	23-Sep-13	3	540	Male	Spawner	1587	No				Red	Zone 1
Anadromous	23-Sep-13	3	550	Male	Spawner	1588	No				Red	Zone 1
Anadromous	23-Sep-13	3	455	Male	Spawner	1589	No				Red	Zone 1
Anadromous	23-Sep-13	3	590	Female	Spawner	1590	Wound & scar	Wound ant	erior dorsal/ scar dorsal	posterior	Red	Zone 1
Anadromous	23-Sep-13	3	650		Silver	1591	No				Red	Zone 1
Anadromous	23-Sep-13	3	520	Female	Spawner	1592	No				Red	Zone 1
Anadromous	23-Sep-13	3	410		Silver	1593	No				Red	Zone 1
Anadromous	23-Sep-13	3	535		Silver		No				Red	Zone 1
Anadromous	23-Sep-13	3	480	Male	Spawner	1595	No				Red	Zone 1
Anadromous	23-Sep-13	3	440		Silver	1596	No				Red	Zone 1
Anadromous	23-Sep-13	3	450		Silver	1597	No				Red	Zone 1
Anadromous	23-Sep-13	3	510	Male	Spawner	1598	No				Red	Zone 1

Anadromou	•	3	520		Silver	1599	No			Red	Zone 1
Anadromou	•	3	410		Silver	1600	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	555	Female	Spawner	1601	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	580	Female	Spawner	1602	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	425		Silver	1603	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	400	Male	Spawner	1604	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	545		Silver	1605	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	410		Silver	1606	No			Red	Zone 1
Anadromou		3	515	Female	Spawner	1607	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	530	Female	Spawner	1608	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	470	Male	Spawner	1609	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	565	Male	Spawner	1610	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	365	Female	Spawner	1611	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	580		Silver	1612	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	460		Silver	1613	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	430		Silver	1614	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	475		Silver	1615	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	440	Female	Spawner	1616	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	500	Female	Spawner	1617	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	520	Female	Spawner	1618	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	430	Female	Spawner	1619	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	530	Female	Spawner		No	Recapture	229	Red	Zone 1
Anadromou	ıs 23-Sep-13	3	460		Silver	1620	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	460		Silver	1621	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	480		Silver	1622	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	420		Silver	1623	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	510	Male	Spawner	1624	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	405	Female	Spawner	1625	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	535	Male	Spawner	1626	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	315		Silver	1627	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	575	Female	Spawner	1628	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	495		Silver		No	Recapture	651	Grey	Zone 1
Anadromou	ıs 23-Sep-13	3	490	Female	Spawner	1629	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	335		Silver	1630	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	420	Female	Spawner	1631	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	540	Male	Spawner		No	Recapture	669	Grey	Zone 1
Anadromou	ıs 23-Sep-13	3	525	Male	Spawner	1632	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	440		Silver	1633	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	480	Male	Spawner	1634	No			Red	Zone 1
Anadromou		3	375		Silver	1635	No			Red	Zone 1
Anadromou	ıs 23-Sep-13	3	450		Silver	1636	No			Red	Zone 1

Anadromous	23-Sep-13	3	485		Silver	1637	No			Red	Zone 1
Anadromous	23-Sep-13	3	565		Silver	1638	No			Red	Zone 1
Anadromous	23-Sep-13	3	460		Silver	1639	No			Red	Zone 1
Anadromous	23-Sep-13	3	345		Silver	1640	No			Red	Zone 1
Anadromous	23-Sep-13	3	460	Female	Spawner	1641	No			Red	Zone 1
Anadromous	23-Sep-13	3	545		Silver	1642	No			Red	Zone 1
Anadromous	23-Sep-13	3	385		Silver	1643	No			Red	Zone 1
Anadromous	23-Sep-13	3	435	Female	Spawner	1644	No			Red	Zone 1
Anadromous	23-Sep-13	3	455		Silver	1645	No			Red	Zone 1
Anadromous	23-Sep-13	3	415	Male	Spawner	1646	No			Red	Zone 1
Anadromous	23-Sep-13	3	425	Male	Spawner		No	Recapture	1043	Brown	Zone 1
Anadromous	23-Sep-13	3	510	Female	Spawner	1647	No			Red	Zone 1
Anadromous	23-Sep-13	3	385		Silver	1648	No			Red	Zone 1
Anadromous	23-Sep-13	3	350		Silver	1649	No			Red	Zone 1
Anadromous	23-Sep-13	3	420		Silver	1650	No			Red	Zone 1
Anadromous	23-Sep-13	3	440		Silver	1651	No			Red	Zone 1
Anadromous	23-Sep-13	3	495	Female	Spawner	1652	No			Red	Zone 1
Anadromous	23-Sep-13	3	500	Female	Spawner	1653	No			Red	Zone 1
Anadromous	23-Sep-13	3	655		Silver	1654	No			Red	Zone 1
Anadromous	23-Sep-13	3	350		Silver	1655	No			Red	Zone 1
Anadromous	23-Sep-13	3	460	Female	Spawner	1656	No			Red	Zone 1
Anadromous	23-Sep-13	3	470	Female	Spawner	1657	No			Red	Zone 1
Anadromous	23-Sep-13	3	520		Silver	1658	No			Red	Zone 1
Anadromous	23-Sep-13	3	425		Silver	1659	No			Red	Zone 1
Anadromous	23-Sep-13	3	450		Silver		No	Recapture	1377	Brown	Zone 1
Anadromous	23-Sep-13	3	420		Silver	1660	No			Red	Zone 1
Anadromous	23-Sep-13	3	545	Female	Spawner	1661	No			Red	Zone 1
Anadromous	23-Sep-13	3	520	Female	Spawner		No	Recapture	393	Red	Zone 1
Anadromous	23-Sep-13	3	440	Female	Spawner	1662	No			Red	Zone 1
Anadromous	23-Sep-13	3	630		Silver	1663	No			Red	Zone 1
Anadromous	23-Sep-13	3	420	Female	Spawner	1664	No			Red	Zone 1
Anadromous	23-Sep-13	3	455		Silver		No			Red	Zone 1
Anadromous	23-Sep-13	3	495	Female	Spawner	1666	No			Red	Zone 1
Anadromous	23-Sep-13	3	550	Female	Spawner	1667	No			Red	Zone 1
Anadromous	23-Sep-13	3	490		Silver	1668	No			Red	Zone 1
Anadromous	23-Sep-13	3	585	Male	Spawner	1669	No			Red	Zone 1
Anadromous	23-Sep-13	4	460	Female	Spawner	1670	No			Red	Zone 1
Anadromous	23-Sep-13	4	490		Silver	1671	No			Red	Zone 1
Anadromous	23-Sep-13	4	470	Male	Spawner	1672	No			Red	Zone 1
Anadromous	23-Sep-13	4	435		Silver	1673	No			Red	Zone 1
Anadromous	23-Sep-13	4	535		Silver	1674	No			Red	Zone 1

Anadromous	23-Sep-13	4	465		Silver	1675	No			Red	Zone 1
Anadromous	23-Sep-13	4	370		Silver	1676	No			Red	Zone 1
Anadromous	23-Sep-13	4	430		Silver	1677	No			Red	Zone 1
Anadromous	23-Sep-13	4	680		Silver	1678	No			Red	Zone 1
Anadromous	23-Sep-13	4	565		Silver	1679	No			Red	Zone 1
Anadromous	23-Sep-13	4	680	Male	Spawner	1680	No			Red	Zone 1
Anadromous	23-Sep-13	4	460	Female	Spawner	1681	No			Red	Zone 1
Anadromous	23-Sep-13	4	455		Silver	1682	No			Red	Zone 1
Anadromous	23-Sep-13	4	430	Male	Spawner	1683	No			Red	Zone 1
Anadromous	23-Sep-13	4	365		Silver	1684	No			Red	Zone 1
Anadromous	23-Sep-13	4	450	Female	Spawner	1685	No			Red	Zone 1
Anadromous	23-Sep-13	4	565	Male	Spawner	1686	No			Red	Zone 1
Anadromous	23-Sep-13	4	430	Female	Spawner	1687	No			Red	Zone 1
Anadromous	23-Sep-13	4	465		Silver	1688	No			Red	Zone 1
Anadromous	23-Sep-13	4	475	Female	Spawner	1689	No			Red	Zone 1
Anadromous	23-Sep-13	4	430		Silver	1690	No			Red	Zone 1
Anadromous	23-Sep-13	4	590		Silver	1691	No			Red	Zone 1
Anadromous	23-Sep-13	4	525		Silver	1692	No			Red	Zone 1
Anadromous	23-Sep-13	4	560		Silver	1693	No			Red	Zone 1
Anadromous	23-Sep-13	4	385		Silver	1694	No			Red	Zone 1
Anadromous	23-Sep-13	4	380		Silver	1695	No			Red	Zone 1
Anadromous	23-Sep-13	4	370		Silver	1696	No			Red	Zone 1
Anadromous	23-Sep-13	4	380		Silver	1697	No			Red	Zone 1
Anadromous	23-Sep-13	4	420		Silver	1698	No			Red	Zone 1
Anadromous	23-Sep-13	4	615		Silver	1699	No			Red	Zone 1
Anadromous	23-Sep-13	4	360		Silver	1700	No			Red	Zone 1
Anadromous	23-Sep-13	4	440	Female	Spawner	1701	No			Red	Zone 1
Anadromous	23-Sep-13	4	425		Silver	1702	No			Red	Zone 1
Anadromous	23-Sep-13	4	365	Male	Spawner	1703	No			Red	Zone 1
Anadromous	23-Sep-13	4	420	Female	Spawner	1704	No			Red	Zone 1
Anadromous	23-Sep-13	4	675		Silver	1705	No			Red	Zone 1
Anadromous	23-Sep-13	4	540	Female	Spawner	1706	No			Red	Zone 1
Anadromous	23-Sep-13	4	510	Female	Spawner	1707	No			Red	Zone 1
Anadromous	23-Sep-13	4	535	Male	Spawner	1708	No			Red	Zone 1
Anadromous	23-Sep-13	4	525	Male	Spawner	1709	No			Red	Zone 1
Anadromous	23-Sep-13	4	525	Female	Spawner	1710	No			Red	Zone 1
Anadromous	23-Sep-13	4	485	Female	Spawner	1711	No			Red	Zone 1
Anadromous	23-Sep-13	4	460		Silver	1712	No			Red	Zone 1
Anadromous	23-Sep-13	4	345		Silver	1713	No			Red	Zone 1
Anadromous	23-Sep-13	4	490	Female	Spawner		No	Recapture	645	Grey	Zone 1
Anadromous	23-Sep-13	4	345		Silver	1714	No			Red	Zone 1

Anadromous	23-Sep-13	4	400		Silver	1715	No
Anadromous	23-Sep-13	4	495	Male	Spawner	1716	No
Anadromous	23-Sep-13	4	605	Female	Spawner	1717	No
Anadromous	23-Sep-13	4	445	Female	Spawner	1718	No
Anadromous	23-Sep-13	4	475		Silver	1719	No
Anadromous	23-Sep-13	4	345		Silver	1720	No
Anadromous	23-Sep-13	4	475		Silver	1721	No
Anadromous	23-Sep-13	4	520		Silver	1722	No
Anadromous	23-Sep-13	4	505		Silver	1723	No
Anadromous	23-Sep-13	4	445	Male	Spawner	1724	No
Anadromous	23-Sep-13	4	455	Male	Spawner	1725	No
Anadromous	23-Sep-13	4	500	Female	Spawner	1726	No
Anadromous	23-Sep-13	4	415	Female	Spawner	1727	No
Anadromous	23-Sep-13	5	420	Female	Spawner	1728	No
Anadromous	23-Sep-13	5	420		Silver	1729	No
Anadromous	23-Sep-13	5	350		Silver	1730	No
Anadromous	23-Sep-13	5	440		Silver	1731	No
Anadromous	23-Sep-13	5	535		Silver	1732	No
Anadromous	23-Sep-13	5	510	Female	Spawner	1733	No
Anadromous	23-Sep-13	5	435		Silver	1734	No
Anadromous	23-Sep-13	5	400		Silver	1735	No
Anadromous	23-Sep-13	5	430		Silver	1736	No
Anadromous	23-Sep-13	5	570		Silver	1737	No
Anadromous	23-Sep-13	5	570		Silver	1738	No
Anadromous	23-Sep-13	5	545		Silver	1739	No
Anadromous	23-Sep-13	5	425	Male	Spawner	1740	No
Anadromous	23-Sep-13	5	490		Silver	1741	No
Anadromous	23-Sep-13	5	425		Silver	1742	No
Anadromous	23-Sep-13	5	415		Silver	1743	No
Anadromous	23-Sep-13	5	435		Silver	1744	No
Anadromous	23-Sep-13	5	425		Silver	1745	No
Anadromous	23-Sep-13	5	530		Silver	1746	No
Anadromous	23-Sep-13	5	470		Silver	1747	No
Anadromous	23-Sep-13	5	470		Silver	1748	No
Anadromous	23-Sep-13	5	430		Silver	1749	No
Anadromous	23-Sep-13	5	350		Silver	1750	No
Anadromous	23-Sep-13	5	400		Silver	1751	No
Anadromous	23-Sep-13	5	425		Silver	1752	No
Anadromous	23-Sep-13	5	490	Female	Spawner	1753	No
Anadromous	23-Sep-13	5	485		Silver	1754	No
Anadromous	23-Sep-13	5	500		Silver	1755	No

Red	Zone 1
Red	Zone 1

Anadromous	23-Sep-13	5	440		Silver	1756	No
Anadromous	23-Sep-13	5	360	Male	Spawner	1757	No
Anadromous	23-Sep-13	5	380		Silver	1758	No
Anadromous	23-Sep-13	5	500	Female	Spawner	1759	No
Anadromous	23-Sep-13	5	460		Silver	1760	No
Anadromous	23-Sep-13	5	540		Silver	1761	No
Anadromous	23-Sep-13	5	465	Female	Spawner	1762	No
Anadromous	23-Sep-13	5	450		Silver	1763	No
Anadromous	23-Sep-13	5	475		Silver	1764	No
Anadromous	23-Sep-13	5	460		Silver	1765	No
Anadromous	23-Sep-13	5	525		Silver	1766	No
Anadromous	23-Sep-13	5	410		Silver	1767	No
Anadromous	23-Sep-13	5	390		Silver	1768	No
Anadromous	23-Sep-13	5	490		Silver	1769	No
Anadromous	23-Sep-13	5	600		Silver	1770	No
Anadromous	23-Sep-13	5	465		Silver	1771	No
Anadromous	23-Sep-13	5	335		Silver	1772	No
Anadromous	23-Sep-13	5	435		Silver	1773	No
Anadromous	23-Sep-13	5	560		Silver	1774	No
Anadromous	23-Sep-13	5	405		Silver	1775	No
Anadromous	23-Sep-13	5	505	Male	Spawner	1776	No
Anadromous	23-Sep-13	5	480	Female	Spawner	1777	No
Anadromous	23-Sep-13	5	670		Silver	1778	No
Anadromous	23-Sep-13	5	425		Silver	1779	No
Anadromous	23-Sep-13	5	525		Silver	1780	No
Anadromous	23-Sep-13	5	475	Female	Spawner	1781	No
Anadromous	23-Sep-13	5	335		Silver	1782	No
Anadromous	23-Sep-13	5	405		Silver	1783	No
Anadromous	23-Sep-13	5	455		Silver	1784	No
Anadromous	23-Sep-13	5	350		Silver	1785	No
Anadromous	23-Sep-13	5	390	Male	Spawner	1786	No
Anadromous	23-Sep-13	5	440		Silver	1787	No
Anadromous	23-Sep-13	5	475		Silver	1788	No
Anadromous	23-Sep-13	5	420	Female	Spawner	1789	No
Anadromous	23-Sep-13	5	430		Silver	1790	No
Anadromous	23-Sep-13	5	360		Silver	1791	No
Anadromous	23-Sep-13	5	505		Silver	1792	No
Anadromous	23-Sep-13	5	470	Female	Spawner	1793	No
Anadromous	23-Sep-13	5	360		Silver	1794	No
Anadromous	23-Sep-13	5	455	Male	Spawner	1795	No
Anadromous	23-Sep-13	5	380		Silver	1796	No

Red	Zone 1
Red	Zone 1

Anadromous	23-Sep-13	5	490	Female	Spawner	1797	No			Red	Zone 1
Anadromous	23-Sep-13	5	455		Silver	1798	No			Red	Zone 1
Anadromous	23-Sep-13	5	520	Female	Spawner	1799	No			Red	Zone 1
Anadromous	23-Sep-13	5	420		Silver	1800	No			Red	Zone 1
Anadromous	23-Sep-13	5	525	Female	Spawner	1801	No			Red	Zone 1
Anadromous	23-Sep-13	5	680		Silver		No	Recapture	1028	Brown	Zone 1
Anadromous	23-Sep-13	5	440		Silver	1802	No			Red	Zone 1
Anadromous	23-Sep-13	5	530	Male	Spawner	1803	No			Red	Zone 1
Anadromous	23-Sep-13	5	540		Silver	1804	No			Red	Zone 1
Anadromous	23-Sep-13	5	535	Male	Spawner	1805	No			Red	Zone 1
Anadromous	23-Sep-13	5	300		Silver		No				Zone 1
Anadromous	23-Sep-13	5	455	Female	Spawner	1806	No			Red	Zone 1
Anadromous	23-Sep-13	5	515		Silver	1807	No			Red	Zone 1
Anadromous	23-Sep-13	5	635		Silver	1808	No			Red	Zone 1
Anadromous	23-Sep-13	5	670		Silver		No	Recapture	258	Red	Zone 1
Anadromous	23-Sep-13	5	370		Silver	1809	No			Red	Zone 1
Anadromous	23-Sep-13	5	350		Silver	1810	No			Red	Zone 1
Anadromous	23-Sep-13	5	540	Female	Spawner	1811	No			Red	Zone 1
Anadromous	23-Sep-13	5	515		Silver	1812	No			Red	Zone 1
Anadromous	23-Sep-13	5	520	Female	Spawner	1813	No			Red	Zone 1
Anadromous	23-Sep-13	5	460	Male	Spawner	1814	No			Red	Zone 1
Anadromous	23-Sep-13	5	420		Silver	1815	No			Red	Zone 1
Anadromous	23-Sep-13	5	495	Female	Spawner	1816	No			Red	Zone 1
Anadromous	23-Sep-13	5	440		Silver	1817	No			Red	Zone 1
Anadromous	23-Sep-13	5	505	Female	Spawner	1818	No			Red	Zone 1
Anadromous	23-Sep-13	5	525		Silver	1819	No			Red	Zone 1
Anadromous	23-Sep-13	5	355		Silver	1820	No			Red	Zone 1
Anadromous	23-Sep-13	5	425	Female	Spawner	1821	No			Red	Zone 1
Anadromous	23-Sep-13	5	620		Silver	1822	No			Red	Zone 1
Anadromous	23-Sep-13	5	480	Female	Spawner		No	Recapture	579	Grey	Zone 1
Anadromous	23-Sep-13	5	405		Silver	1823	No			Red	Zone 1
Anadromous	23-Sep-13	5	490	Male	Spawner	1824	No			Red	Zone 1
Anadromous	23-Sep-13	5	600		Silver		No	Recapture	1297	Brown	Zone 1
Anadromous	23-Sep-13	5	320		Silver	1825	No			Red	Zone 1
Anadromous	23-Sep-13	5	485		Silver	1826	No			Red	Zone 1
Anadromous	23-Sep-13	5	545	Male	Spawner	1827	No			Red	Zone 1
Anadromous	23-Sep-13	5	500		Silver	1828	No			Red	Zone 1
Anadromous	23-Sep-13	5	410		Silver	1829	No			Red	Zone 1
Anadromous	23-Sep-13	5	460		Silver	1830	No			Red	Zone 1
Anadromous	23-Sep-13	5	450	Female	Spawner	1831	No			Red	Zone 1
Anadromous	23-Sep-13	5	440		Silver	1832	No			Red	Zone 1
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Anadromous	23-Sep-13	5	375		Silver	1833	No			Red	Zone 1
Anadromous	23-Sep-13	5	480	Female	Spawner	1834	No			Red	Zone 1
Anadromous	23-Sep-13	5	465		Silver	1835	No			Red	Zone 1
Anadromous	23-Sep-13	5	460	Female	Spawner	1836	No			Red	Zone 1
Anadromous	23-Sep-13	5	515		Silver	1837	No			Red	Zone 1
Anadromous	23-Sep-13	5	445		Silver	1838	No			Red	Zone 1
Anadromous	23-Sep-13	5	410	Male	Spawner	1839	No			Red	Zone 1
Anadromous	23-Sep-13	5	440	Female	Spawner	1840	No			Red	Zone 1
Anadromous	23-Sep-13	5	460		Silver	1841	No			Red	Zone 1
Anadromous	23-Sep-13	5	420	Female	Spawner	1842	No			Red	Zone 1
Anadromous	23-Sep-13	5	400		Silver	1843	No			Red	Zone 1
Anadromous	23-Sep-13	5	350		Silver	1844	No			Red	Zone 1
Anadromous	23-Sep-13	5	470	Female	Spawner	1845	No			Red	Zone 1
Anadromous	23-Sep-13	5	350		Silver	1846	No			Red	Zone 1
Anadromous	23-Sep-13	5	420	Female	Spawner	1847	No			Red	Zone 1
Anadromous	23-Sep-13	5	440		Silver	1848	No			Red	Zone 1
Anadromous	23-Sep-13	5	485	Female	Spawner	1849	No			Red	Zone 1
Anadromous	23-Sep-13	5	420	Female	Spawner	1850	No			Red	Zone 1
Anadromous	23-Sep-13	5	270		Silver		No				Zone 1
Anadromous	23-Sep-13	5	580		Silver	1851	No			Red	Zone 1
Anadromous	23-Sep-13	5	425	Female	Spawner	1852	No			Red	Zone 1
Anadromous	23-Sep-13	5	440		Silver	1853	No			Red	Zone 1
Anadromous	23-Sep-13	5	450		Silver	1854	No			Red	Zone 1
Anadromous	23-Sep-13	5	495		Silver	1855	No			Red	Zone 1
Anadromous	23-Sep-13	5	370		Silver	1856	No			Red	Zone 1
Anadromous	23-Sep-13	5	430		Silver	1857	No			Red	Zone 1
Anadromous	23-Sep-13	5	520		Silver	1858	No			Red	Zone 1
Anadromous	23-Sep-13	5	575	Female	Spawner	1859	No			Red	Zone 1
Anadromous	23-Sep-13	5	505		Silver	1860	No			Red	Zone 1
Anadromous	23-Sep-13	5	320		Silver	1861	No			Red	Zone 1
Anadromous	23-Sep-13	5	485	Female	Spawner	1862	No			Red	Zone 1
Anadromous	23-Sep-13	5	450		Silver	1863	No			Red	Zone 1
Anadromous	23-Sep-13	5	445		Silver	1864	No			Red	Zone 1
Anadromous	23-Sep-13	5	565	Female	Spawner		No	Recapture	179	Red	Zone 1
Anadromous	23-Sep-13	5	345		Silver	1865	No			Red	Zone 1
Anadromous	23-Sep-13	5	385		Silver	1866	No			Red	Zone 1
Anadromous	23-Sep-13	5	530	Male	Spawner	1867	No			Red	Zone 1
Anadromous	23-Sep-13	5	340		Silver	1868	No			Red	Zone 1
Anadromous	23-Sep-13	5	435	Male	Spawner	1869	No			Red	Zone 1
Anadromous	23-Sep-13	5	460		Silver	1870	No			Red	Zone 1
Anadromous	23-Sep-13	5	280		Silver		No				Zone 1

Anadromous	23-Sep-13	5	455	Female	Spawner	1871	No				Red	Zone 1
Anadromous	23-Sep-13	5	455		Silver	1872	No				Red	Zone 1
Anadromous	23-Sep-13	5	450		Silver	1873	No				Red	Zone 1
Anadromous	23-Sep-13	5	370		Silver	1874	No				Red	Zone 1
Anadromous	23-Sep-13	5	370		Silver	1875	No				Red	Zone 1
Anadromous	23-Sep-13	5	385		Silver	1876	No				Red	Zone 1
Anadromous	23-Sep-13	5	535	Female	Spawner	1877	No				Red	Zone 1
Anadromous	23-Sep-13	5	495	Male	Spawner	1878	No				Red	Zone 1
Anadromous	23-Sep-13	5	440		Silver	1879	No				Red	Zone 1
Anadromous	23-Sep-13	5	375		Silver	1880	No				Red	Zone 1
Anadromous	23-Sep-13	5	460		Silver	1881	No				Red	Zone 1
Anadromous	23-Sep-13	5	440		Silver	1882	No				Red	Zone 1
Anadromous	23-Sep-13	5	420	Female	Spawner	1883	No				Red	Zone 1
Anadromous	23-Sep-13	5	390		Silver	1884	No				Red	Zone 1
Anadromous	23-Sep-13	5	480		Silver	1885	No				Red	Zone 1
Anadromous	23-Sep-13	5	400		Silver	1886	No				Red	Zone 1
Anadromous	23-Sep-13	5	470	Female	Spawner	1887	No				Red	Zone 1
Anadromous	23-Sep-13	5	500		Silver	1888	No				Red	Zone 1
Anadromous	23-Sep-13	5	605		Silver		No	ı	Recapture	604	Grey	Zone 1
Anadromous	23-Sep-13	5	290		silver		No					Zone 1
Anadromous	23-Sep-13	5	425		silver	1889	No				Red	Zone 1
Anadromous	23-Sep-13	5	495	Female	Spawner	1890	No				Red	Zone 1
Anadromous	23-Sep-13	5	555		Silver	1891	No				Red	Zone 1
Anadromous	23-Sep-13	5	550	Male	Spawner	1892	No				Red	Zone 1
Anadromous	23-Sep-13	5	470	Female	Spawner	1893	No				Red	Zone 1
Anadromous	23-Sep-13	5	420		Silver	1894	No				Red	Zone 1
Anadromous	23-Sep-13	5	440		Silver	1895	No				Red	Zone 1
Anadromous	23-Sep-13	5	540		Silver	1896	No				Red	Zone 1
Anadromous	23-Sep-13	5	385		Silver	1897	No				Red	Zone 1
Anadromous	23-Sep-13	5	525		Silver	1898	No				Red	Zone 1
Anadromous	23-Sep-13	5	420		Silver	1899	No				Red	Zone 1
Anadromous	23-Sep-13	5	515	Male	Spawner	1900	No				Red	Zone 1
Anadromous	23-Sep-13	5	530		Silver	1901	No				Red	Zone 1
Anadromous	23-Sep-13	5	340		Silver	1902	No				Red	Zone 1
Anadromous	23-Sep-13	5	405		Silver	1903	No				Red	Zone 1
Anadromous	23-Sep-13	5	410		Silver	1904	No				Red	Zone 1
Anadromous	23-Sep-13	5	460	Male	Spawner	1905	No				Red	Zone 1
Anadromous	23-Sep-13	5	465		Silver	1906	No				Red	Zone 1
Anadromous	23-Sep-13	5	450	Female	Spawner	1907	No				Red	Zone 1
Anadromous	23-Sep-13	5	430		Silver	1908	No				Red	Zone 1
Anadromous	23-Sep-13	5	410		Silver	1909	No				Red	Zone 1
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Anadromous	23-Sep-13	5	445	Male	Spawner	1910	No			Red	Zone 1
Anadromous	23-Sep-13	5	460		Silver	1911	No	D t	_	Red	Zone 1
Anadromous	23-Sep-13	5	580	Female	Spawner	4040	No	Recapture	5	Red	Zone 1
Anadromous	23-Sep-13	5	650		Silver	1912	No			Red	Zone 1
Anadromous	23-Sep-13	5	365		Silver	1913	No			Red	Zone 1
Anadromous	23-Sep-13	5	440		Silver	1914	No			Red	Zone 1
Anadromous	23-Sep-13	5	440		Silver	1915	No			Red	Zone 1
Anadromous	23-Sep-13	5	510	Male	Spawner	1916	No			Red	Zone 1
Anadromous	23-Sep-13	5	510	Female	Spawner	1917	No			Red	Zone 1
Anadromous	23-Sep-13	5	425		Silver	1918	No			Red	Zone 1
Anadromous	23-Sep-13	5	490		Silver	1919	No			Red	Zone 1
Anadromous	23-Sep-13	5	350		Silver	1920	No			Red	Zone 1
Anadromous	23-Sep-13	5	385	Male	Spawner	1921	No			Red	Zone 1
Anadromous	23-Sep-13	5	655		Silver	1922	No			Red	Zone 1
Anadromous	23-Sep-13	5	495		Silver	1923	No			Red	Zone 1
Anadromous	23-Sep-13	5	410		Silver	1924	No			Red	Zone 1
Anadromous	23-Sep-13	5	360		Silver	1925	No			Red	Zone 1
Anadromous	23-Sep-13	5	385		Silver	1926	No			Red	Zone 1
Anadromous	23-Sep-13	5	320		Silver	1927	No			Red	Zone 1
Anadromous	23-Sep-13	5	450		Silver	1928	No			Red	Zone 1
Anadromous	23-Sep-13	5	420		Silver	1929	No			Red	Zone 1
Anadromous	23-Sep-13	5	430		Silver	1930	No			Red	Zone 1
Anadromous	23-Sep-13	5	450		Silver	1931	No			Red	Zone 1
Anadromous	23-Sep-13	5	500		Silver	1932	No			Red	Zone 1
Anadromous	23-Sep-13	5	470		Silver	1933	No			Red	Zone 1
Anadromous	23-Sep-13	5	585		Silver	1934	No			Red	Zone 1
Anadromous	23-Sep-13	5	415		Silver	1935	No			Red	Zone 1
Anadromous	23-Sep-13	5	280		Silver	1936	No			Red	Zone 1
Anadromous	23-Sep-13	5	360		Silver	1937	No			Red	Zone 1
Anadromous	23-Sep-13	5	360		Silver	1938	No			Red	Zone 1
Anadromous	23-Sep-13	5	400		Silver	1939	No			Red	Zone 1
Anadromous	23-Sep-13	5	525	Male	Spawner	1940	No			Red	Zone 1
Anadromous	23-Sep-13	5	550		Silver	1941	No			Red	Zone 1
Anadromous	23-Sep-13	5	420		Silver	1942	No			Red	Zone 1
Anadromous	23-Sep-13	5	470		Silver	1943	No			Red	Zone 1
Anadromous	23-Sep-13	5	460	Female	Spawner	1944	No			Red	Zone 1
Anadromous	23-Sep-13	5	500		Silver	1945	No			Red	Zone 1
Anadromous	23-Sep-13	5	445		Silver	1946	No			Red	Zone 1
Anadromous	23-Sep-13	5	450		Silver	1947	No			Red	Zone 1
Anadromous	23-Sep-13	5	425		Silver	1948	No			Red	Zone 1
Anadromous	23-Sep-13	5	390		Silver	1949	No			Red	Zone 1
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Anadromous	23-Sep-13	5	530		Silver	1950	No
Anadromous	23-Sep-13	5	420		Silver	1951	No
Anadromous	23-Sep-13	5	445		Silver	1952	No
Anadromous	23-Sep-13	5	410		Silver	1953	No
Anadromous	23-Sep-13	5	440		Silver	1954	No
Anadromous	23-Sep-13	5	605		Silver	1955	No
Anadromous	23-Sep-13	5	430		Silver	1956	No
Anadromous	23-Sep-13	5	415		Silver	1957	No
Anadromous	23-Sep-13	5	430		Silver	1958	No
Anadromous	23-Sep-13	5	410		Silver	1959	No
Anadromous	23-Sep-13	5	470		Silver	1960	No
Anadromous	23-Sep-13	5	440		Silver	1961	No
Anadromous	23-Sep-13	5	455		Silver	1962	No
Anadromous	23-Sep-13	5	395		Silver	1963	No
Anadromous	23-Sep-13	5	370		Silver	1964	No
Anadromous	23-Sep-13	5	505		Silver	1965	No
Anadromous	23-Sep-13	5	325		Silver	1966	No
Anadromous	23-Sep-13	5	410		Silver	1967	No
Anadromous	23-Sep-13	5	570		Silver	1968	No
Anadromous	23-Sep-13	5	560		Silver	1969	No
Anadromous	23-Sep-13	5	535		Silver	1970	No
Anadromous	23-Sep-13	5	440		Silver	1971	No
Anadromous	23-Sep-13	5	415		Silver	1972	No
Anadromous	23-Sep-13	5	335		Silver	1973	No
Anadromous	23-Sep-13	5	400		Silver	1974	No
Anadromous	23-Sep-13	5	475		Silver	1975	No
Anadromous	23-Sep-13	5	480		Silver	1976	No
Anadromous	23-Sep-13	5	510	Female	Spawner	1977	No
Anadromous	23-Sep-13	5	435		Silver	1978	No
Anadromous	23-Sep-13	5	430		Silver	1979	No
Anadromous	23-Sep-13	5	480		Silver	1980	No
Anadromous	23-Sep-13	5	360		Silver	1981	No
Anadromous	23-Sep-13	5	365		Silver	1982	No
Anadromous	23-Sep-13	5	340		Silver	1983	No
Anadromous	23-Sep-13	5	395		Silver	1984	No
Anadromous	23-Sep-13	5	445		Silver	1985	No
Anadromous	23-Sep-13	5	365		Silver	1986	No
Anadromous	23-Sep-13	5	400		Silver	1987	No
Anadromous	23-Sep-13	5	370		Silver	1988	No
Anadromous	23-Sep-13	5	475	Female	Spawner	1989	No
Anadromous	23-Sep-13	5	510	Female	Spawner	1990	No

Red	Zone 1
Red	Zone 1

Anadromous	23-Sep-13	5	420	Male	Spawner	1991	No			Red	Zone 1
Anadromous	23-Sep-13	5	400		Silver	1992	No			Red	Zone 1
Anadromous	23-Sep-13	5	525		Silver	1993	No			Red	Zone 1
Anadromous	23-Sep-13	5	460		Silver	1994	No			Red	Zone 1
Anadromous	23-Sep-13	5	510		Silver	1995	No			Red	Zone 1
Anadromous	23-Sep-13	5	445		Silver	1996	No			Red	Zone 1
Anadromous	23-Sep-13	5	470	Female	Spawner	1997	No			Red	Zone 1
Anadromous	23-Sep-13	5	425	Female	Spawner	1998	No			Red	Zone 1
Anadromous	23-Sep-13	5	435		Silver	1999	No			Red	Zone 1
Anadromous	23-Sep-13	5	415		Silver	2000	No			Red	Zone 1
Anadromous	23-Sep-13	5	360		Silver		No				Zone 1
Resident	23-Sep-13	5	370	Male	Spawner						Zone 1
Anadromous	23-Sep-14	1	565	Female	Spawner	2001	No			Grey	Zone 1
Anadromous	23-Sep-14	1	500		Silver	2002	No			Grey	Zone 1
Anadromous	23-Sep-14	1	420	Female	Spawner	2003	No			Grey	Zone 1
Anadromous	23-Sep-14	1	430		Silver	2004	No			Grey	Zone 1
Anadromous	23-Sep-14	1	500		Silver	2005	No			Grey	Zone 1
Anadromous	23-Sep-14	1	485		Silver	2006	No			Grey	Zone 1
Anadromous	23-Sep-14	1	355		Silver	2007	No			Grey	Zone 1
Anadromous	23-Sep-14	1	435		Silver	2008	No			Grey	Zone 1
Anadromous	23-Sep-14	1	420	Male	Spawner	2009	No			Grey	Zone 1
Anadromous	23-Sep-14	1	460	Female	Spawner	2010	No			Grey	Zone 1
Anadromous	23-Sep-14	1	490	Male	Spawner	2011	No			Grey	Zone 1
Anadromous	23-Sep-14	1	600	Male	Spawner	2012	No			Grey	Zone 1
Anadromous	23-Sep-14	1	365		Silver	2013	No			Grey	Zone 1
Anadromous	23-Sep-14	1	460	Female	Spawner		No	Recapture	1644	Red	Zone 1
Anadromous	23-Sep-14	1	495		Silver	2014	No	•		Grey	Zone 1
Anadromous	23-Sep-14	1	460		Silver	2015	No			Grey	Zone 1
Anadromous	23-Sep-14	1	545		Silver	2016	No			Grey	Zone 1
Anadromous	23-Sep-14	1	512		Silver	2017	No			Grey	Zone 1
Anadromous	23-Sep-14	1	440	Female	Spawner	2018	No			Grey	Zone 1
Anadromous	23-Sep-14	1	430	Female	Spawner	2019	No			Grev	Zone 1
Anadromous	23-Sep-14	1	420	Female	Spawner	2020	No			Grey	Zone 1
Anadromous	23-Sep-14	1	465	Male	Spawner	2021	No			Grey	Zone 1
Anadromous	23-Sep-14	1	625		Silver	2022	No			Grey	Zone 1
Anadromous	23-Sep-14	1	620		Silver		No	Recapture	1774	Red	Zone 1
Anadromous	23-Sep-14	1	680		Silver		No	Recapture	545	Grey	Zone 1
Anadromous	23-Sep-14	1	430	Female	Spawner	2023	No	. to captaio	0.0	Grey	Zone 1
Anadromous	23-Sep-14	1	400	Female	Spawner	2024	No			Grey	Zone 1
Anadromous	23-Sep-14	1	285		Silver		No			٠.٠,	Zone 1
Anadromous	23-Sep-14	1	600		Silver	2025	No			Grey	Zone 1
	_0 0 0p	•			•					٠.٠,	

Anadromous	23-Sep-14	1	525		Silver	2026	No			Grey	Zone 1
Anadromous	23-Sep-14	1	440	Female	Spawner	2027	No			Grey	Zone 1
Anadromous	23-Sep-14	1	470	Female	Spawner		No	Recapture	1650	Red	Zone 1
Anadromous	23-Sep-14	1	380		Silver	2028	No	·		Grey	Zone 1
Anadromous	23-Sep-14	1	325		Silver	2029	No			Grey	Zone 1
Anadromous	23-Sep-14	1	450	Male	Spawner		No	Recapture	1458	Brown	Zone 1
Anadromous	23-Sep-14	1	490	Female	Spawner	2030	No	·		Grey	Zone 1
Anadromous	23-Sep-14	1	350	Male	Spawner		No			•	Zone 1
Anadromous	23-Sep-14	1	365		Silver	2031	No			Grey	Zone 1
Anadromous	23-Sep-14	1	470	Female	Spawner	2032	No			Grey	Zone 1
Anadromous	23-Sep-14	1	408		Silver	2033	No			Grey	Zone 1
Anadromous	23-Sep-14	1	320		Silver	2034	No			Grey	Zone 1
Anadromous	23-Sep-14	1	530	Female	Spawner		No	Recapture	639	Grey	Zone 1
Anadromous	23-Sep-14	1	440	Female	Spawner	2035	No			Grey	Zone 1
Anadromous	23-Sep-14	1	465	Male	Spawner		No	Recapture	1815	Red	Zone 1
Anadromous	23-Sep-14	1	480	Male	Spawner	2036	No			Grey	Zone 1
Anadromous	23-Sep-14	1	360		Silver	2037	No			Grey	Zone 1
Anadromous	23-Sep-14	1	470	Male	Spawner		No	Recapture	1519	Red	Zone 1
Anadromous	23-Sep-14	1	500		Silver	2038	No			Grey	Zone 1
Anadromous	23-Sep-14	1	375		Silver	2039	No			Grey	Zone 1
Anadromous	23-Sep-14	1	460	Female	Spawner	2040	No			Grey	Zone 1
Anadromous	23-Sep-14	1	400	Female	Spawner	2041	No			Grey	Zone 1
Anadromous	23-Sep-14	1	330		Silver	2042	No			Grey	Zone 1
Anadromous	23-Sep-14	1	395		Silver	2043	No			Grey	Zone 1
Anadromous	23-Sep-14	1	480		Silver	2044	No			Grey	Zone 1
Anadromous	23-Sep-14	1	470		Silver	2045	No			Grey	Zone 1
Anadromous	23-Sep-14	1	510		Silver		No	Recapture	1636	Red	Zone 1
Anadromous	23-Sep-14	1	370		Silver	2046	No			Grey	Zone 1
Anadromous	23-Sep-14	1	345		Silver	2047	No			Grey	Zone 1
Anadromous	23-Sep-14	1	685		Silver	2048	No			Grey	Zone 1
Anadromous	23-Sep-14	1	450	Female	Spawner	2049	No			Grey	Zone 1
Anadromous	23-Sep-14	1	475	Female	Spawner	2050	No			Grey	Zone 1
Anadromous	23-Sep-14	1	370		Silver	2051	No			Grey	Zone 1
Anadromous	23-Sep-14	1	420		Silver	2052	No			Grey	Zone 1
Anadromous	23-Sep-14	1	475	Female	Spawner	2053	No			Grey	Zone 1
Anadromous	23-Sep-14	1	325		Silver	2054	No			Grey	Zone 1
Anadromous	23-Sep-14	1	505	Female	Spawner	2055	No			Grey	Zone 1
Anadromous	23-Sep-14	1	470	Female	Spawner	2056	No			Grey	Zone 1
Anadromous	23-Sep-14	2	425		Silver	2057	No			Grey	Zone 1
Anadromous	23-Sep-14	2	530		Silver	2058	No			Grey	Zone 1
Anadromous	23-Sep-14	2	480	Female	Spawner		No	Recapture	1907	Red	Zone 1

Anadromous	23-Sep-14	2	510		Silver	2059	No				Grey	Zone 1
Anadromous	23-Sep-14	2	430		Silver	2060	No				Grey	Zone 1
Anadromous	23-Sep-14	2	495	Male	Spawner	2061	No				Grey	Zone 1
Anadromous	23-Sep-14	2	430		Silver	2062	No				Grey	Zone 1
Anadromous	23-Sep-14	2	475		Silver	2063	No				Grey	Zone 1
Anadromous	23-Sep-14	2	555	Male	Spawner	2064	No				Grey	Zone 1
Anadromous	23-Sep-14	2	415	Male	Spawner	2065	No				Grey	Zone 1
Anadromous	23-Sep-14	2	450	Female	Spawner	2066	No				Grey	Zone 1
Anadromous	23-Sep-14	2	425		Silver	2067	No				Grey	Zone 1
Anadromous	23-Sep-14	2	540		Silver	2068	No				Grey	Zone 1
Anadromous	23-Sep-14	2	305		Silver	2069	No				Grey	Zone 1
Anadromous	23-Sep-14	2	320		Silver	2070	No				Grey	Zone 1
Anadromous	23-Sep-14	2	465		Silver	2071	No				Grey	Zone 1
Anadromous	23-Sep-14	2	445	Female	Spawner	2072	No				Grey	Zone 1
Anadromous	23-Sep-14	2	455	Female	Spawner	2073	No				Grey	Zone 1
Anadromous	23-Sep-14	2	485		Silver	2074	No				Grey	Zone 1
Anadromous	23-Sep-14	2	290		Silver	2075	No				Grey	Zone 1
Anadromous	23-Sep-14	2	370		Silver	2084	No				Grey	Zone 1
Anadromous	23-Sep-14	3	465		Silver	2076	No				Grey	Zone 1
Anadromous	23-Sep-14	3	470	Male	Spawner		No	Red	apture	1510	Red	Zone 1
Anadromous	23-Sep-14	3	430	Male	Spawner	2077	No				Grey	Zone 1
Anadromous	23-Sep-14	3	360		Silver	2078	No				Grey	Zone 1
Anadromous	23-Sep-14	3	460		Silver	2079	No				Grey	Zone 1
Anadromous	23-Sep-14	3	480	Female	Spawner	2080	No				Grey	Zone 1
Anadromous	23-Sep-14	3	525		Silver	2081	No				Grey	Zone 1
Anadromous	23-Sep-14	3	475		Silver	2082	No				Grey	Zone 1
Anadromous	23-Sep-14	3	495		Silver	2083	No				Grey	Zone 1
Anadromous	23-Sep-14	3	485		Silver	2085	No				Grey	Zone 1
Anadromous	23-Sep-14	3	570	Female	Spawner	2086	No				Grey	Zone 1
Anadromous	23-Sep-14	3	365		Silver	2087	No				Grey	Zone 1
Anadromous	23-Sep-14	3	415		Silver	2088	No				Grey	Zone 1
Anadromous	23-Sep-14	3	585		Silver		No	Red	apture	1456	Brown	Zone 1
Anadromous	23-Sep-14	3	515		Silver	2089	No				Grey	Zone 1
Anadromous	23-Sep-14	3	550		Silver	2090	No				Grey	Zone 1
Anadromous	23-Sep-14	3	455	Female	Spawner	2091	No				Grey	Zone 1
Anadromous	23-Sep-14	3	285		Silver		No				-	Zone 1
Anadromous	23-Sep-14	3	270		Silver		No					Zone 1
Anadromous	23-Sep-14	3	460	Female	Spawner	2092	No				Grey	Zone 1
Anadromous	23-Sep-14	3	545	Female	Spawner		No	Red	apture	1592	Red	Zone 1
Anadromous	23-Sep-14	3	360		Silver	2093	No		•		Grey	Zone 1
Anadromous	23-Sep-14	3	440	Female	Spawner	2094	No				Grey	Zone 1
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Anadromous	23-Sep-14	3	485		Silver	2095	No				Grey	Zone 1
Anadromous	23-Sep-14	3	500		Silver	2096	No				Grey	Zone 1
Anadromous	23-Sep-14	3	625		Silver		No	R	Recapture	1968	Red	Zone 1
Anadromous	23-Sep-14	3	500		Silver	2097	No				Grey	Zone 1
Anadromous	23-Sep-14	3	460	Male	Spawner	2098	No				Grey	Zone 1
Anadromous	23-Sep-14	3	425	Female	Spawner	2099	No				Grey	Zone 1
Anadromous	23-Sep-14	3	520		Silver	2100	No				Grey	Zone 1
Anadromous	23-Sep-14	3	500		Silver	2101	No				Grey	Zone 1
Anadromous	23-Sep-14	3	480	Male	Spawner	2102	No				Grey	Zone 1
Anadromous	23-Sep-14	3	490		Silver	2103	No				Grey	Zone 1
Anadromous	23-Sep-14	3	405		Silver	2104	No				Grey	Zone 1
Anadromous	23-Sep-14	3	410		Silver	2105	No				Grey	Zone 1
Anadromous	23-Sep-14	3	400	Female	Spawner	2106	No				Grey	Zone 1
Anadromous	23-Sep-14	3	275		Silver		No					Zone 1
Anadromous	23-Sep-14	3	565		Silver	2107	No				Grey	Zone 1
Anadromous	23-Sep-14	3	505		Silver	2108	No				Grey	Zone 1
Anadromous	23-Sep-14	3	475		Silver	2109	No				Grey	Zone 1
Anadromous	23-Sep-14	3	426		Silver	2110	No				Grey	Zone 1
Anadromous	23-Sep-14	3	275		Silver		No					Zone 1
Anadromous	23-Sep-14	3	405		Silver	2111	No				Grey	Zone 1
Anadromous	23-Sep-14	3	465		Silver	2112	No				Grey	Zone 1
Anadromous	23-Sep-14	3	370		Silver	2113	No				Grey	Zone 1
Anadromous	23-Sep-14	3	460		Silver		No	R	Recapture	1992	Red	Zone 1
Anadromous	23-Sep-14	3	350		Silver	2114	No				Grey	Zone 1
Anadromous	23-Sep-14	3	355		Silver	2115	No				Grey	Zone 1
Anadromous	23-Sep-14	3	420	Male	Spawner	2116	No				Grey	Zone 1
Anadromous	23-Sep-14	3	525		Silver	2117	No				Grey	Zone 1
Anadromous	23-Sep-14	3	430		Silver	2118	No				Grey	Zone 1
Anadromous	23-Sep-14	3	370		Silver	2119	No				Grey	Zone 1
Anadromous	23-Sep-14	4	505	Female	Spawner	2120	No				Grey	Zone 1
Anadromous	23-Sep-14	4	415		Silver	2121	No				Grey	Zone 1
Anadromous	23-Sep-14	4	535	Female	Spawner	2122	No				Grey	Zone 1
Anadromous	23-Sep-14	4	500		Silver	2123	No				Grey	Zone 1
Anadromous	23-Sep-14	4	360		Silver	2124	No				Grey	Zone 1
Anadromous	23-Sep-14	4	500		Silver	2125	No				Grey	Zone 1
Anadromous	23-Sep-14	4	435		Silver	2126	No				Grey	Zone 1
Anadromous	23-Sep-14	4	445		Silver	2127	No				Grey	Zone 1
Anadromous	23-Sep-14	4	440		Silver	2128	No				Grey	Zone 1
Anadromous	23-Sep-14	4	530		Silver	2129	No				Grey	Zone 1
Anadromous	23-Sep-14	4	450		Silver	2130	No				Grey	Zone 1
Anadromous	23-Sep-14	4	400		Silver	2131	No				Grey	Zone 1
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Anadromous	23-Sep-14	4	335		Silver	2132	No
Anadromous	23-Sep-14	4	605		Silver	2133	No
Anadromous	23-Sep-14	4	430		Silver	2134	No
Anadromous	23-Sep-14	4	330		Silver	2135	No
Anadromous	23-Sep-14	4	360		Silver	2136	No
Anadromous	23-Sep-14	4	445		Silver	2137	No
Anadromous	23-Sep-14	4	440		Silver	2138	No
Anadromous	23-Sep-14	4	420		Silver	2139	No
Anadromous	23-Sep-14	4	550		Silver	2140	No
Anadromous	23-Sep-14	4	440		Silver	2141	No
Anadromous	23-Sep-14	4	345		Silver	2142	No
Anadromous	23-Sep-14	4	420		Silver	2143	No
Anadromous	23-Sep-14	4	390		Silver	2144	No
Anadromous	23-Sep-14	4	445		Silver	2145	No
Anadromous	23-Sep-14	4	530		Silver	2146	No
Anadromous	23-Sep-14	4	455		Silver	2147	No
Anadromous	23-Sep-14	4	495		Silver	2148	No
Anadromous	23-Sep-14	4	430		Silver	2149	No
Anadromous	23-Sep-14	4	380		Silver	2150	No
Anadromous	23-Sep-14	4	430		Silver	2151	No
Anadromous	23-Sep-14	4	415	Female	Spawner	2152	No
Anadromous	23-Sep-14	5	705	Male	Spawner	2153	No
Anadromous	23-Sep-14	5	600	Female	Spawner	2154	No
Anadromous	23-Sep-14	5	580	Male	Spawner	2155	No
Anadromous	23-Sep-14	5	600	Female	Spawner	2156	No
Anadromous	23-Sep-14	5	495	Male	Spawner	2157	No
Anadromous	23-Sep-14	6	515	Female	Spawner	2158	No
Anadromous	23-Sep-14	6	480	Female	Spawner	2159	No
Anadromous	23-Sep-14	6	590	Female	Spawner	2160	No
Anadromous	23-Sep-14	6	485	Female	Spawner	2161	No
Anadromous	23-Sep-14	6	415	Female	Spawner	2162	No
Anadromous	23-Sep-14	6	570	Female	Spawner	2163	No
Anadromous	23-Sep-14	6	500	Female	Spawner	2164	No
Anadromous	23-Sep-14	6	460	Male	Spawner	2165	No
Anadromous	23-Sep-14	6	530	Male	Spawner	2166	No
Anadromous	23-Sep-14	6	575	Male	Spawner	2167	No
Anadromous	23-Sep-14	6	530	Male	Spawner	2168	No
Anadromous	23-Sep-14	6	450	Female	Spawner	2169	No
Anadromous	23-Sep-14	6	530	Male	Spawner	2170	No
Anadromous	23-Sep-14	6	590	Male	Spawner	2171	No
Anadromous	23-Sep-14	6	460	Female	Spawner	2172	No

Grey	Zone 1
Grey	Zone 1
Grey	Zone 2
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Anadromous	23-Sep-14	6	605	Female	Spawner	2173	No			Grev	Zone 2
Anadromous	23-Sep-14	6	670	Male	Spawner	2174	No			Grey	Zone 2
Anadromous	23-Sep-14	6	455	Male	Spawner	2175	No			Grey	Zone 2
Anadromous	23-Sep-14	6	510	Female	Spawner	2170	No	Recapture	1834	Red	Zone 2
Anadromous	23-Sep-14 23-Sep-14	6	690	Male	Spawner	2176	No	Recapture	1034	Grey	Zone 2
Freshwater juv.	23-Sep-14 23-Sep-14	6	208	Male	Immature	2170	No			Gley	Zone 2
Resident	23-Sep-14 23-Sep-14	6	243	Male	Spawner		INO				Zone 2 Zone 2
Resident	•		161	Male	•						Zone 2 Zone 2
Resident	23-Sep-14 23-Sep-14	6 6	185	Male	Spawner						Zone 2 Zone 2
	•	7			Spawner	0477	No			Crov	
Anadromous	23-Sep-14		560	Female	Spawner	2177 2178	No No			Grey	Zone 2
Anadromous	23-Sep-14	7	575	Male	Spawner		No No			Grey	Zone 2
Anadromous	23-Sep-14	7	575 525	Male	Spawner	2179	No			Grey	Zone 2
Anadromous	23-Sep-14	7	525	Female	Spawner	2180	No			Grey	Zone 2
Anadromous	23-Sep-14	7	470	Female	Spawner	2181	No			Grey	Zone 2
Anadromous	23-Sep-14	7	575	Female	Spawner	2182	No			Grey	Zone 2
Anadromous	23-Sep-14	7	565	Female	Spawner	2183	No			Grey	Zone 2
Anadromous	23-Sep-14	7	565	Male	Spawner	2184	No			Grey	Zone 2
Anadromous	23-Sep-14	7	515	Male	Spawner	2185	No			Grey	Zone 2
Freshwater juv.	23-Sep-14	7	182		Immature		No				Zone 2
Resident	23-Sep-14	7	185	Male	Spawner						Zone 2
Resident	23-Sep-14	7	252	Male	Spawner						Zone 2
Resident	23-Sep-14	7	200	Male	Spawner					_	Zone 2
Anadromous	25-Sep-14	8	635	Male	Spawner	2186	No			Grey	Zone 2
Anadromous	25-Sep-14	8	780	Male	Spawner	2187	No			Grey	Zone 2
Anadromous	25-Sep-14	8	665	Male	Spawner	2188	No			Grey	Zone 2
Anadromous	25-Sep-14	8	455	Female	Spawner	2189	No			Grey	Zone 2
Anadromous	25-Sep-14	8	530	Female	Spawner	2190	No			Grey	Zone 2
Anadromous	25-Sep-14	8	440	Female	Spawner	2191	No			Grey	Zone 2
Anadromous	25-Sep-14	8	455	Female	Spawner	2192	No			Grey	Zone 2
Anadromous	25-Sep-14	8	515	Male	Spawner	2193	No			Grey	Zone 2
Anadromous	25-Sep-14	8	525	Male	Spawner	2194	No			Grey	Zone 2
Anadromous	25-Sep-14	8	525	Female	Spawner	2195	No			Grey	Zone 2
Anadromous	25-Sep-14	8	665	Male	Spawner	2196	No			Grey	Zone 2
Anadromous	25-Sep-14	8	650	Male	Spawner	2197	No			Grey	Zone 2
Anadromous	25-Sep-14	8	490	Female	Spawner	2198	No			Grey	Zone 2
Anadromous	25-Sep-14	8	450	Female	Spawner	2199	No			Grey	Zone 2
Anadromous	25-Sep-14	8	460	Female	Spawner	2200	No			Grey	Zone 2
Anadromous	25-Sep-14	8	430	Male	Spawner	2201	No			Grey	Zone 2
Anadromous	25-Sep-14	8	625	Female	Spawner	2202	No			Grey	Zone 2
Anadromous	25-Sep-14	8	715	Male	Spawner	2203	No			Grey	Zone 2
Anadromous	25-Sep-14	8	460	Female	Spawner	2204	No			Grey	Zone 2

Anadromous	25-Sep-14	8	260		Silver		No				Zone 2
Anadromous	25-Sep-14	8	510	Female	Spawner	2205	No			Grey	Zone 2
Anadromous	25-Sep-14	8	560	Female	Spawner		No	Recapture	354	Red	Zone 2
Anadromous	25-Sep-14	8	485	Female	Spawner	2206	No			Grey	Zone 2
Anadromous	25-Sep-14	8	465	Female	Spawner	2207	No			Grey	Zone 2
Anadromous	25-Sep-14	8	295		Silver		No			·	Zone 2
Anadromous	25-Sep-14	8	530	Female	Spawner	2208	No			Grey	Zone 2
Anadromous	25-Sep-14	8	480	Female	Spawner	2209	No			Grey	Zone 2
Anadromous	25-Sep-14	8	495	Female	Spawner	2210	No			Grey	Zone 2
Anadromous	25-Sep-14	8	480	Female	Spawner	2211	No			Grey	Zone 2
Anadromous	25-Sep-14	8	300		Silver	2212	No			Grey	Zone 2
Anadromous	25-Sep-14	8	250		Silver		No			-	Zone 2
Anadromous	25-Sep-14	8	300		Silver	2213	No			Grey	Zone 2
Anadromous	25-Sep-14	8	470	Male	Spawner	2214	No			Grey	Zone 2
Anadromous	25-Sep-14	8	470	Female	Spawner	2215	No			Grey	Zone 2
Anadromous	25-Sep-14	8	485	Female	Spawner	2216	No			Grey	Zone 2
Anadromous	25-Sep-14	8	615	Male	Spawner	2217	No			Grey	Zone 2
Anadromous	25-Sep-14	8	505	Female	Spawner	2218	No			Grey	Zone 2
Anadromous	25-Sep-14	8	550	Female	Spawner		No	Recapture	233	Red	Zone 2
Anadromous	25-Sep-14	8	480	Female	Spawner	2219	No			Grey	Zone 2
Anadromous	25-Sep-14	8	485	Female	Spawner	2220	No			Grey	Zone 2
Anadromous	25-Sep-14	8	475	Female	Spawner	2221	No			Grey	Zone 2
Resident	25-Sep-14	8	170	Male	Spawner						Zone 2
Resident	25-Sep-14	8	265	Male	Spawner						Zone 2
Resident	25-Sep-14	8	195	Male	Spawner						Zone 2
Resident	25-Sep-14	8	220	Male	Spawner						Zone 2
Resident	25-Sep-14	8	170	Male	Spawner						Zone 2
Anadromous	25-Sep-14	9	605	Male	Spawner	2222	No			Grey	Zone 2
Anadromous	25-Sep-14	9	595	Female	Spawner		No				Zone 2
Anadromous	25-Sep-14	9	660	Male	Spawner	2225	No			Grey	Zone 2
Anadromous	25-Sep-14	9	560	Female	Spawner	2226	No			Grey	Zone 2
Anadromous	25-Sep-14	9	555	Male	Spawner	2227	No			Grey	Zone 2
Anadromous	25-Sep-14	9	470	Female	Spawner	2228	No			Grey	Zone 2
Anadromous	25-Sep-14	9	525	Female	Spawner	2229	No			Grey	Zone 2
Anadromous	25-Sep-14	9	275		Silver		No			Grey	Zone 2
Anadromous	25-Sep-14	9	455	Female	Spawner	2230	No			Grey	Zone 2
Anadromous	25-Sep-14	9	465	Male	Spawner	2231	No			Grey	Zone 2
Anadromous	25-Sep-14	9	275		Silver		No			Grey	Zone 2
Anadromous	25-Sep-14	9	430	Male	Spawner	2232	No			Grey	Zone 2
Anadromous	25-Sep-14	9	580	Female	Spawner	2233	No			Grey	Zone 2
Anadromous	25-Sep-14	9	490	Female	Spawner	2234	No			Grey	Zone 2

Anadromous	25-Sep-14	9	565	Male	Spawner	2235	No			Grey	Zone 2
Anadromous	25-Sep-14	9	530	Female	Spawner	2236	No			Grey	Zone 2
Anadromous	25-Sep-14	9	525	Female	Spawner	2237	No			Grey	Zone 2
Anadromous	25-Sep-14	9	600	Female	Spawner	2238	No			Grey	Zone 2
Anadromous	25-Sep-14	9	535	Male	Spawner	2239	No			Grey	Zone 2
Anadromous	25-Sep-14	9	520	Female	Spawner	2240	No			Grey	Zone 2
Resident	25-Sep-14	9	285	Male	Spawner						Zone 2
Anadromous	25-Sep-14	10	570	Female	Spawner	2241	No			Grey	Zone 2
Anadromous	25-Sep-14	10	565	Female	Spawner	2242	No			Grey	Zone 2
Anadromous	25-Sep-14	10	465	Female	Spawner	2243	No			Grey	Zone 2
Anadromous	25-Sep-14	10	600	Male	Spawner	2244	No			Grey	Zone 2
Anadromous	25-Sep-14	10	495	Female	Spawner	2245	No			Grey	Zone 2
Anadromous	25-Sep-14	10	685	Male	Spawner	2246	No			Grey	Zone 2
Anadromous	25-Sep-14	10	595	Male	Spawner		No	Recapture	210	Red	Zone 2
Anadromous	25-Sep-14	10	620	Male	Spawner	2247	No			Grey	Zone 2
Anadromous	25-Sep-14	10	620	Male	Spawner		No	Recapture	1186	Brown	Zone 2
Anadromous	25-Sep-14	10	510	Female	Spawner	2248	No			Grey	Zone 2
Anadromous	25-Sep-14	10	530	Female	Spawner	2249	No			Grey	Zone 2
Anadromous	25-Sep-14	10	480	Female	Spawner	2250	No			Grey	Zone 2
Anadromous	25-Sep-14	10	490	Female	Spawner	2251	No			Grey	Zone 2
Anadromous	25-Sep-14	10	575	Female	Spawner	2252	No			Grey	Zone 2
Anadromous	25-Sep-14	10	450	Female	Spawner	2253	No			Grey	Zone 2
Anadromous	25-Sep-14	10	555	Female	Spawner	2254	No			Grey	Zone 2
Anadromous	25-Sep-14	10	560	Female	Spawner	2255	No			Grey	Zone 2
Anadromous	25-Sep-14	10	560	Male	Spawner		No	Recapture	1828	Red	Zone 2
Anadromous	25-Sep-14	10	640	Male	Spawner	2256	No			Grey	Zone 2
Anadromous	25-Sep-14	10	335		Silver	2257	No			Grey	Zone 2
Anadromous	25-Sep-14	10	560	Male	Spawner	2258	No			Grey	Zone 2
Anadromous	25-Sep-14	10	445	Female	Spawner	2259	No			Grey	Zone 2
Anadromous	25-Sep-14	10	560	Female	Spawner	2260	No			Grey	Zone 2
Anadromous	25-Sep-14	10	480	Female	Spawner	2261	No			Grey	Zone 2
Anadromous	25-Sep-14	10	595	Female	Spawner	2262	No			Grey	Zone 2
Anadromous	25-Sep-14	10	480	Female	Spawner	2263	No			Grey	Zone 2
Anadromous	25-Sep-14	10	365	Male	Spawner		No				Zone 2
Anadromous	25-Sep-14	10	560	Female	Spawner	2264	No			Grey	Zone 2
Anadromous	25-Sep-14	10	510	Male	Spawner	2265	No			Grey	Zone 2
Anadromous	25-Sep-14	10	580	Female	Spawner	2266	No			Grey	Zone 2
Anadromous	25-Sep-14	10	530	Female	Spawner		No	Recapture	1091	Brown	Zone 2
Anadromous	25-Sep-14	10	545	Female	Spawner	2267	No			Grey	Zone 2
Anadromous	25-Sep-14	10	585	Female	Spawner		No	Recapture	1361	Brown	Zone 2
Anadromous	25-Sep-14	10	430	Male	Spawner	2268	No			Grey	Zone 2
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Anadromous	25-Sep-14	10	485	Male	Spawner	2269	No				Grey	Zone 2
Anadromous	25-Sep-14	10	520	Female	Spawner	2270	No				Grey	Zone 2
Anadromous	25-Sep-14	10	510	Female	Spawner	2271	No				Grey	Zone 2
Anadromous	25-Sep-14	10	570	Female	Spawner	2272	No				Grey	Zone 2
Anadromous	25-Sep-14	10	550	Female	Spawner	2273	No				Grey	Zone 2
Anadromous	25-Sep-14	10	545	Male	Spawner	2274	No				Grey	Zone 2
Anadromous	25-Sep-14	11	590	Male	Spawner	2275	No				Grey	Zone 2
Anadromous	25-Sep-14	11	395	Male	Spawner		No					Zone 2
Anadromous	25-Sep-14	11	480	Female	Spawner	2276	No				Grey	Zone 2
Anadromous	25-Sep-14	11	305		Silver	2277	No				Grey	Zone 2
Anadromous	25-Sep-14	11	570	Male	Spawner	2278	No				Grey	Zone 2
Anadromous	25-Sep-14	11	610	Male	Spawner	2279	No				Grey	Zone 2
Anadromous	25-Sep-14	11	660	Male	Spawner	2282	No				Grey	Zone 2
Anadromous	25-Sep-14	11	525	Female	Spawner	2283	No				Grey	Zone 2
Anadromous	25-Sep-14	11	560	Male	Spawner		No	Reca	oture	1708	Red	Zone 2
Anadromous	25-Sep-14	11	470	Male	Spawner	2284	No				Grey	Zone 2
Anadromous	25-Sep-14	11	435	Female	Spawner	2285	No				Grey	Zone 2
Anadromous	25-Sep-14	11	485	Female	Spawner	2286	No				Grey	Zone 2
Anadromous	25-Sep-14	11	495	Female	Spawner	2287	No				Grey	Zone 2
Anadromous	25-Sep-14	11	605	Male	Spawner	2288	No				Grey	Zone 2
Anadromous	25-Sep-14	11	565	Female	Spawner	2289	No				Grey	Zone 2
Anadromous	25-Sep-14	11	495	Male	Spawner	2290	No				Grey	Zone 2
Anadromous	25-Sep-14	11	465	Female	Spawner	2291	No				Grey	Zone 2
Anadromous	25-Sep-14	11	590	Male	Spawner	2292	No				Grey	Zone 2
Anadromous	25-Sep-14	11	460	Female	Spawner	2295	No				Grey	Zone 2
Anadromous	25-Sep-14	11	530	Male	Spawner	2296	No				Grey	Zone 2
Anadromous	25-Sep-14	11	500	Male	Spawner	2297	No				Grey	Zone 2
Anadromous	25-Sep-14	11	545	Female	Spawner	2298	No				Grey	Zone 2
Anadromous	25-Sep-14	11	475	Female	Spawner	2299	No				Grey	Zone 2
Anadromous	25-Sep-14	11	460	Female	Spawner	2300	No				Grey	Zone 2
Anadromous	25-Sep-14	11	485	Female	Spawner	2301	No				Grey	Zone 2
Anadromous	25-Sep-14	11	470	Female	Spawner	2302	No				Grey	Zone 2
Anadromous	25-Sep-14	11	445	Female	Spawner	2303	No				Grey	Zone 2
Anadromous	25-Sep-14	11	370		Silver	2304	No				Grey	Zone 2
Anadromous	25-Sep-14	11	575	Male	Spawner		No	Reca	oture	1658	Red	Zone 2
Anadromous	25-Sep-14	11	560	Male	Spawner	2305	No				Grey	Zone 2
Anadromous	25-Sep-14	11	570	Male	Spawner	2306	No				Grey	Zone 2
Anadromous	25-Sep-14	11	505	Male	Spawner	2307	No				Grey	Zone 2
Anadromous	25-Sep-14	11	500	Female	Spawner	2308	No				Grey	Zone 2
Anadromous	25-Sep-14	11	515	Female	Spawner	2309	No				Grey	Zone 2
Anadromous	25-Sep-14	11	490	Female	Spawner	2310	No				Grey	Zone 2

Anadromous	25-Sep-14	11	455	Female	Spawner	2311	No		Grey	Zone 2
Anadromous	25-Sep-14 25-Sep-14	11	420	Female	Spawner	2312	No		Grey	Zone 2
Anadromous	25-Sep-14 25-Sep-14	11	520	Female	Spawner	2312	No		Grey	Zone 2
Anadromous	25-Sep-14 25-Sep-14	11	430	i ciliale	Silver	2314	No		Grey	Zone 2
Anadromous	25-Sep-14 25-Sep-14	11	460	Female	Spawner	2315	No		Grey	Zone 2
Anadromous	25-Sep-14 25-Sep-14	11	560	Female	Spawner	2316	No		Grey	Zone 2
Anadromous	25-Sep-14 25-Sep-14	11	430	Female	Spawner	2317	No		Grey	Zone 2
Anadromous	25-Sep-14 25-Sep-14	11	480	Female	Spawner	2317	No		Grey	Zone 2
Anadromous	25-Sep-14 25-Sep-14	11	520	Female	Spawner	2319	No		Grey	Zone 2
Anadromous	25-Sep-14 25-Sep-14	11	550	Female		2319	No		Grey	Zone 2
			490		Spawner				•	
Anadromous	25-Sep-14	11		Female	Spawner	2321	No No		Grey	Zone 2 Zone 2
Anadromous	25-Sep-14	11	430	Female	Spawner	2322	No No		Grey	Zone 2 Zone 2
Anadromous	25-Sep-14	11	530 530	Female	Spawner	2323 2324	No No		Grey	Zone 2 Zone 2
Anadromous	25-Sep-14	11		Female	Spawner		No		Grey	
Anadromous	25-Sep-14	11	705	- 1-	Silver	2325	No		Grey	Zone 2
Anadromous	25-Sep-14	11	560	Female	Spawner	2326	No		Grey	Zone 2
Anadromous	25-Sep-14	11	415		Silver	2327	No		Grey	Zone 2
Anadromous	25-Sep-14	11	535	Female	Spawner	2328	No		Grey	Zone 2
Anadromous	25-Sep-14	11	505	Female	Spawner	2329	No		Grey	Zone 2
Anadromous	25-Sep-14	11	390	Female	Spawner		No		_	Zone 2
Anadromous	25-Sep-14	11	430	Female	Spawner	2330	No		Grey	Zone 2
Anadromous	25-Sep-14	11	520	Male	Spawner	2331	No		Grey	Zone 2
Anadromous	25-Sep-14	11	410	Female	Spawner	2332	No		Grey	Zone 2
Anadromous	25-Sep-14	11	460	Male	Spawner	2333	No		Grey	Zone 2
Anadromous	25-Sep-14	11	350		Silver	2334	No		Grey	Zone 2
Anadromous	25-Sep-14	11	260		Silver		No			Zone 2
Anadromous	25-Sep-14	11	480	Female	Spawner	2335	No		Grey	Zone 2
Anadromous	25-Sep-14	11	605	Male	Spawner	2336	No		Grey	Zone 2
Anadromous	25-Sep-14	11	495	Male	Spawner	2337	No		Grey	Zone 2
Anadromous	25-Sep-14	11	500	Female	Spawner	2338	No		Grey	Zone 2
Anadromous	25-Sep-14	11	560	Female	Spawner	2339	No		Grey	Zone 2
Anadromous	25-Sep-14	11	475	Female	Spawner	2340	No		Grey	Zone 2
Anadromous	25-Sep-14	11	465	Female	Spawner	2341	No		Grey	Zone 2
Anadromous	25-Sep-14	11	470	Female	Spawner	2342	No		Grey	Zone 2
Anadromous	25-Sep-14	11	360	Male	Spawner		No			Zone 2
Anadromous	25-Sep-14	11	470	Female	Spawner	2343	No		Grey	Zone 2
Anadromous	25-Sep-14	12	540	Female	Spawner	2344	No		Grey	Zone 2
Anadromous	25-Sep-14	12	490		Silver	2345	No		Grey	Zone 2
Anadromous	25-Sep-14	12	520	Female	Spawner	2346	No		Grey	Zone 2
Anadromous	25-Sep-14	12	530	Female	Spawner	2347	No		Grey	Zone 2
Anadromous	25-Sep-14	12	610	Male	Spawner	2348	No		Grey	Zone 2
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Anadromous	25-Sep-14	12	505	Female	Spawner	2349	No		Grey	Zone 2
Anadromous	25-Sep-14	12	460	Female	Spawner	2350	No		Grey	Zone 2
Anadromous	25-Sep-14	12	430	Female	Spawner	2351	No		Grey	Zone 2
Anadromous	25-Sep-14	12	530	Female	Spawner	2352	No		Grey	Zone 2
Anadromous	25-Sep-14	12	600	Male	Spawner	2353	No		Grey	Zone 2
Anadromous	25-Sep-14	12	505	Female	Spawner	2354	No		Grey	Zone 2
Anadromous	25-Sep-14	12	530	Female	Spawner	2355	No		Grey	Zone 2
Anadromous	25-Sep-14	12	545	Female	Spawner	2356	No		Grey	Zone 2
Anadromous	25-Sep-14	12	410	Male	Spawner	2357	No		Grey	Zone 2
Anadromous	25-Sep-14	12	450	Female	Spawner	2358	No		Grey	Zone 2
Anadromous	25-Sep-14	12	470	Female	Spawner	2359	No		Grey	Zone 2
Anadromous	25-Sep-14	12	515	Female	Spawner	2360	No		Grey	Zone 2
Anadromous	25-Sep-14	12	505	Female	Spawner	2361	No		Grey	Zone 2
Anadromous	25-Sep-14	12	485	Female	Spawner	2362	No		Grey	Zone 2
Anadromous	25-Sep-14	12	530	Female	Spawner	2363	No		Grey	Zone 2
Anadromous	25-Sep-14	12	425	Female	Spawner	2364	No		Grey	Zone 2
Anadromous	25-Sep-14	12	590	Female	Spawner	2365	No		Grey	Zone 2
Anadromous	25-Sep-14	12	440	Male	Spawner	2366	No		Grey	Zone 2
Anadromous	25-Sep-14	12	545	Male	Spawner	2367	No		Grey	Zone 2
Anadromous	25-Sep-14	12	480	Female	Spawner	2368	No		Grey	Zone 2
Anadromous	25-Sep-14	12	400	Male	Spawner	2369	No		Grey	Zone 2
Anadromous	25-Sep-14	12	290		Silver		No			Zone 2
Anadromous	25-Sep-14	12	570	Male	Spawner	2370	No		Grey	Zone 2
Anadromous	25-Sep-14	12	405	Male	Spawner	2371	No		Grey	Zone 2
Anadromous	25-Sep-14	12	500	Male	Spawner	2374	No		Grey	Zone 2
Anadromous	25-Sep-14	12	450	Female	Spawner	2375	No		Grey	Zone 2
Anadromous	25-Sep-14	12	475	Male	Spawner	2376	No		Grey	Zone 2
Anadromous	25-Sep-14	12	490	Male	Spawner	2377	No		Grey	Zone 2
Anadromous	25-Sep-14	12	435		Silver	2378	No		Grey	Zone 2
Anadromous	25-Sep-14	12	430	Male	Spawner	2379	No		Grey	Zone 2
Anadromous	25-Sep-14	12	270		Silver		No		-	Zone 2
Anadromous	25-Sep-14	12	460	Female	Spawner	2380	No		Grey	Zone 2
Anadromous	25-Sep-14	12	580		Silver	2381	No		Grey	Zone 2
Anadromous	25-Sep-14	12	455		Silver	2382	No		Grey	Zone 2
Anadromous	25-Sep-14	12	485	Female	Spawner	2383	No		Grey	Zone 2
Anadromous	25-Sep-14	12	445	Female	Spawner	2384	No		Grey	Zone 2
Anadromous	25-Sep-14	12	515	Female	Spawner	2385	No		Grey	Zone 2
Anadromous	25-Sep-14	12	580	Female	Spawner	2386	No		Grey	Zone 2
Anadromous	25-Sep-14	12	450	Male	Spawner	2387	No		Grey	Zone 2
Anadromous	25-Sep-14	12	425		Silver	2388	No		Grey	Zone 2
Anadromous	25-Sep-14	12	420	Female	Spawner	2389	No		Grey	Zone 2
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Anadromous	25-Sep-14	12	380	Male	Spawner		No					Zone 2
Anadromous	25-Sep-14	12	475		Silver	2390	No				Grey	Zone 2
Anadromous	25-Sep-14	12	445	Female	Spawner	2391	No				Grey	Zone 2
Anadromous	25-Sep-14	12	390		Silver	2392	No				Grey	Zone 2
Anadromous	25-Sep-14	12	490	Female	Spawner	2393	No				Grey	Zone 2
Anadromous	25-Sep-14	12	565	Female	Spawner	2394	No				Grey	Zone 2
Anadromous	25-Sep-14	12	465	Female	Spawner	2395	No				Grey	Zone 2
Anadromous	25-Sep-14	12	435	Female	Spawner	2396	No				Grey	Zone 2
Anadromous	25-Sep-14	12	495	Female	Spawner	2397	No				Grey	Zone 2
Anadromous	25-Sep-14	12	470	Female	Spawner	2398	No				Grey	Zone 2
Anadromous	25-Sep-14	12	570	Female	Spawner	2399	No				Grey	Zone 2
Anadromous	25-Sep-14	12	420	Female	Spawner	2400	No				Grey	Zone 2
Anadromous	25-Sep-14	12	360	Male	Spawner		No					Zone 2
Anadromous	25-Sep-14	12	525	Female	Spawner		No		Recapture	1917	Red	Zone 2
Anadromous	25-Sep-14	12	525	Female	Spawner		No		Recapture	1977	Red	Zone 2
Anadromous	25-Sep-14	12	525	Female	Spawner	2401	No				Grey	Zone 2
Anadromous	25-Sep-14	12	495	Female	Spawner	2402	No				Grey	Zone 2
Anadromous	25-Sep-14	13	560	Male	Spawner	2403	No				Grey	Zone 3
Anadromous	25-Sep-14	13	345		Silver	2404	No				Grey	Zone 3
Anadromous	25-Sep-14	13	535	Male	Spawner	2405	No				Grey	Zone 3
Anadromous	25-Sep-14	13	430	Female	Spawner	2406	No				Grey	Zone 3
Anadromous	25-Sep-14	13	485	Female	Spawner		No		Recapture	633	Grey	Zone 3
Anadromous	25-Sep-14	13	455	Female	Spawner	2407	No				Grey	Zone 3
Anadromous	25-Sep-14	13	540	Male	Spawner	2408	No				Grey	Zone 3
Anadromous	25-Sep-14	13	450	Female	Spawner	2409	No				Grey	Zone 3
Anadromous	25-Sep-14	13	305		Silver	2410	No				Grey	Zone 3
Anadromous	25-Sep-14	13	320		Silver	2411	No				Grey	Zone 3
Anadromous	25-Sep-14	13	530	Female	Spawner	2412	No				Grey	Zone 3
Anadromous	25-Sep-14	13	280		Silver		No					Zone 3
Anadromous	25-Sep-14	13	280		Silver		No					Zone 3
Anadromous	25-Sep-14	13	575	Male	Spawner	2413	No				Grey	Zone 3
Anadromous	25-Sep-14	13	450	Male	Spawner	2414	No				Grey	Zone 3
Anadromous	25-Sep-14	13	340		Silver	2415	No				Grey	Zone 3
Anadromous	25-Sep-14	13	290		Silver		No					Zone 3
Anadromous	25-Sep-14	13	300		Silver	2416	No				Grey	Zone 3
Anadromous	25-Sep-14	13	385	Female	Spawner	2417	No				Grey	Zone 3
Anadromous	25-Sep-14	13	410	Male	Spawner		No		Recapture	1757	Red	Zone 3
Anadromous	25-Sep-14	13	545	Female	Spawner	2418	Wound	Posterior dorsal			Grey	Zone 3
Anadromous	25-Sep-14	13	600	Female	Spawner	2419	No				Grey	Zone 3
Anadromous	25-Sep-14	13	470	Female	Spawner	2420	No				Grey	Zone 3

Anadromous	25-Sep-14	13	655	Male	Spawner	2421	No	(Grey	Zone 3
Anadromous	25-Sep-14	13	590	Female	Spawner	2422	No	(Grey	Zone 3
Anadromous	25-Sep-14	13	505	Female	Spawner	2423	No	(Grey	Zone 3
Anadromous	25-Sep-14	13	290		Silver		No	(Grey	Zone 3
Anadromous	25-Sep-14	13	450	Female	Spawner	2424	No	(Grey	Zone 3
Anadromous	25-Sep-14	13	385	Female	Spawner		No			Zone 3
Anadromous	25-Sep-14	13	265		Silver		No			Zone 3
Anadromous	25-Sep-14	13	445	Female	Spawner	2425	No	(Grey	Zone 3
Anadromous	25-Sep-14	13	595	Female	Spawner	2426	No	(Grey	Zone 3
Freshwater juv.	25-Sep-14	13	200		Immature		No			Zone 3
Anadromous	25-Sep-14	13	470	Female	Spawner	2427	No	(Grey	Zone 3
Anadromous	25-Sep-14	13	485	Female	Spawner	2428	No	(Grey	Zone 3
Anadromous	25-Sep-14	13	460	Female	Spawner	2429	No	(Grey	Zone 3
Anadromous	25-Sep-14	13	395	Male	Spawner		No			Zone 3
Anadromous	25-Sep-14	13	495	Female	Spawner	2430	No	(Grey	Zone 3
Anadromous	25-Sep-14	13	440	Female	Spawner	2431	No	(Grey	Zone 3
Anadromous	25-Sep-14	13	485	Female	Spawner	2432	No	(Grey	Zone 3
Anadromous	25-Sep-14	13	350		Silver	2433	No	(Grey	Zone 3
Anadromous	25-Sep-14	13	290		Silver		No			Zone 3
Anadromous	25-Sep-14	13	460	Female	Spawner	2434	No	(Grey	Zone 3
Anadromous	25-Sep-14	13	290		Silver		No			Zone 3
Anadromous	25-Sep-14	13	435	Male	Spawner	2435	No	(Grey	Zone 3
Anadromous	25-Sep-14	13	265		Silver		No			Zone 3
Anadromous	25-Sep-14	13	375		Silver	2436	No	(Grey	Zone 3
Anadromous	25-Sep-14	13	530	Female	Spawner	2437	No	(Grey	Zone 3
Anadromous	25-Sep-14	13	510	Female	Spawner	2438	No	(Grey	Zone 3
Anadromous	25-Sep-14	13	285		Silver		No			Zone 3
Anadromous	25-Sep-14	13	520	Female	Spawner	2439	No	(Grey	Zone 3
Anadromous	25-Sep-14	13	485	Female	Spawner	2440	No	(Grey	Zone 3
Anadromous	25-Sep-14	13	430	Female	Spawner	2441	No	(Grey	Zone 3
Anadromous	25-Sep-14	13	485	Female	Spawner	2442	No	(Grey	Zone 3
Anadromous	25-Sep-14	13	470	Female	Spawner	2446	No	(Grey	Zone 3
Anadromous	25-Sep-14	13	285		Silver		No			Zone 3
Anadromous	25-Sep-14	13	265		Silver		No			Zone 3
Anadromous	25-Sep-14	13	250		Silver	No tag	No			Zone 3
Freshwater juv.	25-Sep-14	13	215		Immature		No			Zone 3
Resident	25-Sep-14	13	210	Male	Spawner					Zone 3
Resident	25-Sep-14	13	275	Male	Spawner					Zone 3
Resident	25-Sep-14	13	210	Male	Spawner					Zone 3

APPENDIX 2

Table A2-1: Mann-Whitney test (U) or two-sample t-test examining for differences in length between sampling years for anadromous Dolly Varden identified as A) female (bottom diagonal) and male (top diagonal) spawners, and B) non-spawners that were captured by seining at the spawning and overwintering area in 1987 and 2010-2014. Statistically significant results (p≤0.05) are in bold.

A)

Year	2014	2013	2012	2011		2010	1987
2014		t=-1.4 (1,190), p=0.17	U=5913, p<0.001	U=3786, p=0.26	i	t=0.44(1,172), p=0.66	t=-1.1 (1,206), p=0.29
2013	U=14914, p=0.98		U=3934, p<0.001	l U=2441, p=0.01		t=1.8(1,146), p=0.07	t=-2.6 (1,180), p=0.01
2012	U=13513, p<0.001	U=7883, p<0.001		U=4249, p<0.00)1	U=3326, p<0.001	U=10238, p<0.001
2011	U=11487, p=0.04	t=1.7 (1,246),p=0.09	U= 7270, p<0.00	1		U=2212, p=0.23	U=3599, p=0.53
2010	U=11649, p=0.002	U=6610, p=0.004	U=4342, p<0.001	U=4284, p<0.00)1		t=-0.56 (1,162), p=0.58
1987	U=16585, p=0.48	t=0.79 (1,281), p=0.43	B U=7965, p<0.001	t=2.7 (1,267), p:	=0.007	U=7978, p=0.01	
B)							
Year	2014	2013	2012	2011	2010		
2013	U=20420, p<0.001					<u> </u>	
2012	U=14296, p= 0.064	U= 27629, p= 0.01					
2011	U= 11447, p=0.86	U=17127, p<0.001	U=12093, p=0.18				
2010	U=16217, p<0.001	U= 40439, p=0.27	U= 21918, p=0.002	U= 14361, p<0.001			
1987	U= 10430, p=0.193	U= 18453, p= 0.002	U= 12833, p=0.18	U= 9328, p=0.28	U= 157	20, p=0.007	