

Columbia River Project Water Use Plan

Columbia White Sturgeon Management Plan

CLBMON-21 – Mid-Columbia River Juvenile Sturgeon Detection and Habitat Use Study

Study Period: January 01, 2013 to December 31, 2015
Implementation Years: 7-9

BC Hydro and Power Authority

Prepared by:

Okanagan Nation Alliance
#101-3535 Old Okanagan Highway
Westbank, BC
V4T 3L7

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CLBMON-21: Mid-Columbia River Juvenile White Sturgeon Monitoring 2013-2015 Investigations Report



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Submitted to:

James Crossman, Ph.D.
BC Hydro
601 18th St
Castlegar, BC
V1N 4G7

Submitted by:

Amy Duncan (M.Sc.), Nick Yaniw (Dipl. Tech.) and Kelsey Campbell (BSc)
Okanagan Nation Alliance
#101-3535 Old Okanagan Highway
Westbank, BC
V4T 3L7

Cover Photo: Juvenile White Sturgeon captured in a gill net on September 1st, 2015 by Okanagan Nation Alliance crew. Sturgeon was captured near Shelter Bay.

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Executive Summary

White Sturgeon (*Acipenser transmontanus*) in the upper Columbia River in British Columbia, Canada, was listed as endangered under the federal Species at Risk Act (SARA) in 2006 as the population is undergoing recruitment failure. One segment of the population resides in the Mid-Columbia River, which is a section of the upper Columbia River located between Hugh L. Keenleyside Dam (Castlegar, BC) and Revelstoke Dam (Revelstoke, BC). This small population segment is comprised of approximately 52 adult White Sturgeon (37 - 92 individuals at 95% confidence level) that are older than when the construction of HLK Dam occurred (1969). Natural recruitment to this population has not been identified. In 2007, BC Hydro began an experimental conservation aquaculture program that has released hatchery-reared juvenile White Sturgeon into the Mid-Columbia River. This program has been ongoing in an attempt to evaluate the feasibility of developing either a self-sustaining or failsafe population in this section of the upper Columbia River.

The main objectives of these 3 years of the study are to 1) describe juvenile White Sturgeon habitat use, including quality and quantity within the Mid-Columbia River, and 2) determine growth and survival of juveniles released from the conservation aquaculture program. These objectives have been assessed in previous years through both direct (capture efforts) and indirect (telemetry) methods, though direct capture was the focus of the study years reported here. Direct capture efforts were conducted using a combination of set lines and gill nets in each of 2013 (n=55), 2014 (n=180) and 2015 (n=278).

Over the three years, a total of 12 hatchery-origin juvenile White Sturgeon were captured. Half of the captures had survived one winter prior to capture (age 2); the other half were released in the spring of the capture year. Though sample sizes within years are low, growth since release from the hatchery was calculated for all juveniles. On average the age-1 (released in 2013) fish had grown 5.3 cm in length and gained 0.042 kg. The age-2 fish (released in 2012) had grown 11.6 cm in length and 0.193 kg in weight since release. The fish released in 2012 gained weight at a higher rate than those in 2013, on average gaining 0.174 kg/year. Fish from the 2013 year class, however, grew in length at a higher rate compared to the 2012 year class, increasing 15.0 cm/year on average. Only one juvenile sturgeon was captured from the 2014 year class and as such results cannot be compared to other release years. As a result of low capture rates of juvenile White Sturgeon during these study years (2013-2015), increased capture effort is recommended as well as concentrating effort in locations of previous capture.

The current state of knowledge for the juvenile White Sturgeon program in the Mid-Columbia River with respect to BC Hydro's management questions is provided in the table below.

Management Question	Status
1. Where are the habitat locations utilized by juvenile sturgeon in the Mid-Columbia?	Juvenile White Sturgeon exhibit highest use of habitats starting near Greenslide Cr. (Rkm 212) and moving downstream to Beaton flats and further south into Arrow Lakes Reservoir. Juveniles have not been directly captured below the Beaton Flats area but telemetry has identified a few individuals further downstream towards Nakusp.
2. What are the physical and hydraulic properties of this habitat that define its suitability as juvenile sturgeon habitat?	Juvenile White Sturgeon use deeper (>10 m), lower velocity (<0.5 m/s) habitats with fine substrates (sand/silt/clay). To date, this knowledge has been based primarily on movements of acoustically tagged juveniles (n=250).
3. What is the quantity of available habitat meeting these conditions in the Mid-Columbia?	<p>Both Revelstoke dam discharges and Arrow Lakes Reservoir operations influence habitat quality and quantity. Discharge from Revelstoke Dam influences the quality and quantity of habitat in riverine sections; however the effects diminish with downstream distance. Higher reservoir elevations result in greater availability of deeper, lower velocity habitats further upstream.</p> <p>Recruitment does not appear to be limited by juvenile habitat quality and quantity; however, this hypothesis cannot be rejected at this time.</p>
4. How do hydraulic conditions resulting from dam and reservoir operations relate to habitat suitability for juvenile white sturgeon in the Mid-Columbia?	The main areas of habitat use are downstream from REV Dam (>25 km) where it is considered unlikely that significant improvements can be made.
5. What are the survival rates of juvenile white sturgeon in the Mid-Columbia River?	<p>Though direct captures have been extremely low, an unknown portion of released juveniles survive to age-3 or older and exhibit growth rates of approximately 11.2 cm/year in length. More capture data are needed adequately address this.</p> <p>Larval releases were conducted in 2010 and 2011 and survival of those fish is yet to be detected through this program.</p>
6. Can modifications be made to the operations of Revelstoke Dam and/or Arrow Lakes Reservoir to protect or enhance juvenile white sturgeon habitat?	Uncertainty remains about what an enhancement would entail. Detecting a response of operational modifications would be difficult as the main effects (benefits) would accrue in riverine areas that are not preferred juvenile rearing areas (e.g. from Revelstoke to Greenslide Creek).

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The following employees of the **Okanagan Nation Alliance** contributed to this project:

2013-15	Howie Wright, MSc	Fisheries Biologist, ONAFD Manager
2013-15	Michael Zimmer, MSc, RP Bio	Fisheries Biologist, ONA Contract Manager
2015	Amy Duncan, MSc, BIT	Biologist, ONA Project Manager
2015	Evan Smith, BSc	Certified Technician
2013-15	Nicholas Yaniw, Dip. Tech.	Certified Technician
2013-15	Chelsea Mathieu, BSc	Certified Technician
2013-15	Ryan Poitras	Fisheries Technician
2015	Saul Squakin	Fisheries Technician
2013-15	Paul Snow	Fisheries Technician
2013-14	Dave Tom	Fisheries Technician
2013-14	Keith Louis	Fisheries Technician
2013	Natasha Audy, Dip. Tech.	Certified Technician
2013	Kelsey Campbell, BSc	Biologist
2013	Cash Tonasket	Fisheries Technician
2013	Colette Louie	Fisheries Technician
2013	Jason McLellan, Colville Tribes	Sturgeon Biologist

The following employees of **Golder Associates Ltd.** contributed to this project:

2013	Larry Hildebrand, BSc, RPBio	Senior Fisheries Scientist, Project Advisor
2013	Mike Hildebrand, BSc, RPBio	Fisheries Biologist, Golder Project Manager

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1.0 BACKGROUND AND INTRODUCTION

White sturgeon (*Acipenser transmontanus*) are the largest and longest lived freshwater fish species in North America, and are native to the Columbia River drainage flowing from British Columbia, Canada through the United States. The population of White Sturgeon in the upper Columbia River was listed as Endangered under the Canadian Species at Risk Act (SARA) in 2006 as the population is undergoing recruitment failure (Fisheries and Oceans 2014). A small segment of the population occurs within the Arrow Lakes, a section of the Mid-Columbia River (MCR) spanning from the Revelstoke Dam to the Hugh L. Keenleyside Dam (HLK). It is estimated there are approximately 52 adult White Sturgeon (37 - 92 individuals at 95% confidence level; Golder 2006), all of which are assumed to have been born before 1969 when HLK Dam was completed. There have been no younger age classes detected in this section of the Columbia, suggesting that natural recruitment has not occurred.

During the development of the Columbia River Water Use plan, BC Hydro's Consultative Committee identified knowledge gaps for juvenile White Sturgeon habitat capabilities in the Mid-Columbia River (BC Hydro 2007). Since 2007, BC Hydro has been releasing hatchery origin juvenile White Sturgeon into the Mid-Columbia River. A 10-year juvenile monitoring program was initiated to investigate habitat use, habitat availability and the potential for building a self-sustaining or failsafe population in this section of the Columbia River. One important aspect of the program is to evaluate juvenile growth and survival after release from the hatchery, as well as describe the availability and suitability of habitat for juvenile White Sturgeon in the Arrow Lakes Reservoir. These questions have largely been addressed through monitoring of juveniles following release, either through passive methods (e.g. telemetry) or direct capture (e.g. setlines and gill net effort).

From 2007-2010 over 43,000 juvenile White Sturgeon were released, only 10 of which were recaptured (Golder 2010) which made addressing the objectives of this program challenging. While habitat use was described through tracking of acoustically tagged juveniles (n=50 per year from 2008-2011) in the early years of this program (Golder 2012), it was determined that understanding growth and survival of juveniles following release was critical to determining the potential for building a self-sustaining or failsafe population. In an attempt to increase capture efficiency, a Vemco Positioning System was developed and implemented in 2012 and 2013 in order to provide fine scale movement data. The results of the VPS study indicated juvenile White Sturgeon most commonly used the thalweg portion of the Columbia River, regardless of reservoir elevations (Golder and ONA 2013), which guided the study design of the sampling program in 2013-2015.

The objective of the juvenile White Sturgeon monitoring program in 2013, 2014 and 2015 was to maximize efforts in capturing juveniles to describe distribution, growth and general survival of fish released from the conservation aquaculture program. The study design for these sampling years was guided by the experiences and successes of previous efforts in this program (Golder

2010, 2011, Golder and ONA 2013). Sampling efforts were increased by year from 2013 to 2015, and incorporated the skills and knowledge of a number of Okanagan Nation Alliance field Technicians and Biologists. This report outlines the results of Implementation Years 7, 8 and 9 of CLBMON 21 (2013, 2014, and 2015).

1.1 Management Questions & Hypotheses

The management questions defined by the Consultative Committee and associated with CLBMON 21 as per the Terms of Reference and Scope of Services (BC Hydro 2007) are:

- Where are the habitat locations utilized by juvenile sturgeon in the Mid-Columbia?
- What are the physical and hydraulic properties of this habitat that define its suitability as juvenile sturgeon habitat?
- What is the quantity of available habitat meeting these conditions in the mid-Columbia?
- How do hydraulic conditions resulting from dam and reservoir operations relate to habitat suitability for juvenile White Sturgeon in the mid-Columbia?
- What are the survival rates of juvenile White Sturgeon in the Middle Columbia River?
- Can modifications be made to the operations of Revelstoke Dam and/or Arrow Lakes Reservoir to protect or enhance juvenile White Sturgeon habitat?

Hypotheses for the above management questions have been developed to guide the juvenile sturgeon study, and are as follows:

- H₁: The recruitment of White Sturgeon in Arrow Lakes Reservoir is limited by the quality and quantity of juvenile habitat below Revelstoke Dam.
 - H_{1A}: Quality and quantity of White Sturgeon juvenile habitat in the mid-Columbia River is directly related to discharge from the dam.
 - H_{1B}: Quality and quantity of White Sturgeon juvenile habitat in the mid-Columbia River is directly related to water elevation in Arrow Lakes Reservoir.
 - H_{1C}: Quality and quantity of White Sturgeon juvenile habitat in the mid-Columbia River is directly related to the interaction between discharge from the dam and water elevation in Arrow Lakes Reservoir.
- H₂: Quality and quantity of White Sturgeon juvenile habitat in the mid-Columbia River can be significantly improved through changes in dam and reservoir operations.
- H_{3A}: Juvenile White Sturgeon do not survive in the mid-Columbia River in significant numbers from release as post-hatch larvae to year 1.
- H_{3B}: Juvenile White Sturgeon do not survive in the mid-Columbia River in significant numbers from release as late sub-yearling stage to year 2+ or older.

2.0 METHODS

2.1 Study Area

The Mid-Columbia River is a portion of the Columbia River spanning 230 km from the Revelstoke Dam south to the Hugh L. Keenleyside Dam near Castlegar, BC. This portion of the Columbia River encompasses both the Upper and Lower Arrow Lakes within the Arrow Lakes Reservoir. The juvenile White Sturgeon study area spanned from south of Nakusp, BC near McDonald Creek Provincial Park north to Greenslide Creek (Figure 1). The entire study area is approximately 90 km in length.

2.2 Study Design

Field sampling was designed to optimize chances of catching juvenile White Sturgeon using previous years' successes and failures as guidelines. Previous work has also shown that juvenile White Sturgeon within the Columbia River prefer calm, deep (>10 m) areas with fine substrates (Golder 2009b). Additionally, the 2012 acoustic positioning study showed that juvenile White Sturgeon movement is concentrated within the thalweg or in floodplain areas associated with the thalweg, and that movement of juvenile White Sturgeon is greatest early to mid-September (Golder and ONA 2013).

Gillnet and set line sites were established randomly using the general random tessellation stratified (GRTS; Stevens and Olsen 2004) design in R (R Development Core Team). This method provides spatially balanced randomly chosen sample locations. Sites were randomly distributed along the center line of the Mid-Columbia River and distinguished as setline or gill net sites. Over sample sites were also created to replace sites that were rejected during sampling due to logistical concerns (depth, velocity, obstructions) to ensure that randomness and spatial segregation were maintained within the study design. The generated GRTS sites were used as a guideline, and once in the field, sample locations were selected based on targeted water depths (10 – 30 m).

Timing of sampling was targeted in the fall of 2013 (September/October) to coincide with movements (Golder and ONA 2013). Sampling times were expanded over summer and fall (July – October) in both 2014 and 2015 to exploit water temperatures optimal for foraging and expend additional sampling efforts.

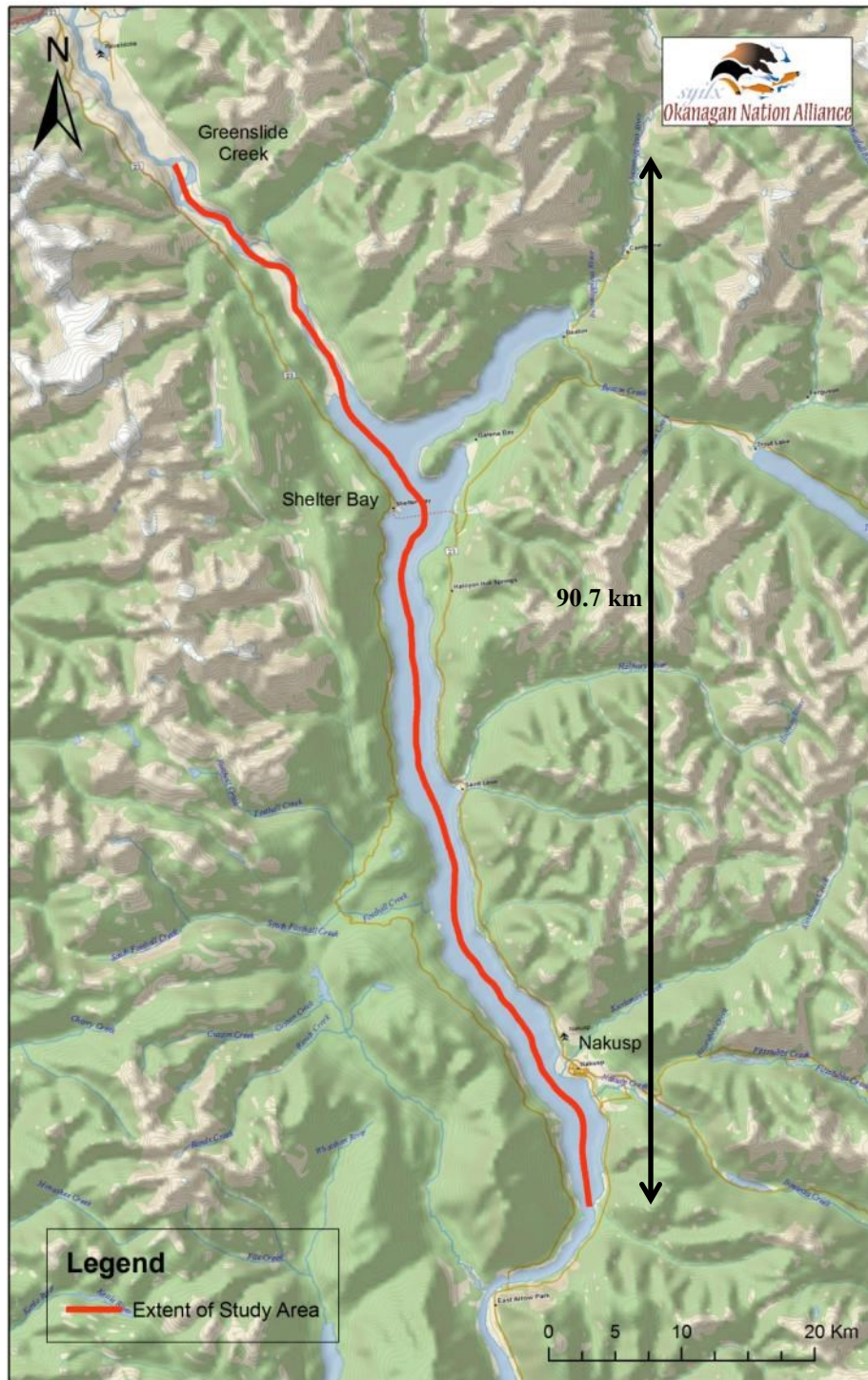


Figure 1: Study location on Upper Arrow Lake near Revelstoke, BC. Red line approximates length of study area.

2.3 Field Sampling

2.3.1 Study Period

The timing of field sampling in all years is represented by the shaded boxes in Table 1 below. In 2013, field sampling was conducted from Sept 28 – Oct 6th. In 2014 the study period was expanded and included four sampling sessions beginning in late July and ending in mid-October. Field sampling was further expanded in 2015 with five 10-day sampling periods beginning in mid-July and ending on Sept 30th. Specific dates and corresponding sampling locations and times can be found in Appendix B.

Table 1: The timing of field sampling in Arrow Lakes Reservoir for juvenile White Sturgeon in each of three study years, 2013-2015.

Year	Month				
	June	July	August	September	October
2013					
2014					
2015					

2.3.2 Physical Habitat Parameters

Water temperatures were measured at each sampling site using an onboard depth sounder or handheld thermometer and measured to the nearest 0.1°C. Water depths were also recorded from the onboard depth sounder. Water temperature data for the mid-Columbia River below Revelstoke Dam was recorded at Stations 6 (2013 and 2014 data) and Station 3 (TR2) (2015 data) as part of BC Hydro’s CLBMON-15A Physical Habitat Monitoring Program. Reservoir levels were recorded at the Fauquier station and discharge data were retrieved from BC Hydro’s historic hydrometric data recorded from the Revelstoke Dam.

2.3.3 Capture Equipment

A number of different equipment types have been used to sample for juvenile White Sturgeon, including angling, tangle nets, trawling, beach seines, set lines and gillnets, among others (McCabe 1994, Courtier 2010, Glova *et al.* 2010, BC Hydro 2015). This study used gill nets and set lines due to the hydraulic and physical properties of the sites along the Arrow Lakes Reservoir. Both sampling methods have been utilized previously for juvenile White Sturgeon with success in the mid- and lower-Columbia River (Golder 2009, 2010, Golder and ONA 2013, BC Hydro 2015).

Gill net sets consisted of a 5.1 cm multi-strand net measuring 1.8 m deep by 91.5 m wide. Few nets were shorter in length measuring 30.5 m long. Gill nets were set for a targeted duration of 4 hours to minimize impacts on captured fish. Gill nets were deployed at the bottom of the water column, with a float and float line with anchors attached to each end of the net. Nets were weighted using steel railway plates on both ends. Set and pull times, surface water temperatures, minimum and maximum net depths, orientation to flow were recorded during each set. Over

sample sites were used in lieu of selected sampling sites where underwater hazards (i.e. tree stumps) limited successful deployment of gear.

Setlines measured 120 m in length were set with 20 size-6 hooks per line. The mainline was marked at 4 m intervals to ensure hooks were evenly spaced on the line. Setlines were set in the afternoon and left to sample overnight. An anchor, float line and LD-2 float were attached to each end of the setline. Barbless 'J' hooks were baited with worms (nightcrawlers) or Kokanee (*Oncorhynchus nerka*) in select years. Setlines were oriented perpendicular to the flow whenever possible to increase downstream scent dispersal. As with the gill net sets, set and pull times, hook sizes, bait types, UTM coordinates, surface water temperatures, minimum and maximum depths of the set line, fouled and baitless hooks, and any other catch details were recorded.

2.3.4 Fish Handling

Upon capture, sturgeon were weighed (g) and measured for fork length (mm), photographed, examined for health and external markings (missing scutes) and scanned for the presence of a passive integrated transponder (PIT) tag. A small tissue sample was removed from the dorsal fin and preserved in a vial containing ethanol. Handling methods were consistent with those set by the Upper Columbia White Sturgeon Recovery Initiative (UCWSRI) in the Upper Columbia River Adult White Sturgeon Capture, Transport and Handling Manual (2006). All bycatch were noted for species and released immediately to reduce negative impact. Bycatch resulting in mortality were sunk by puncturing the swim bladder.

2.4 Data Analysis

Data management and representations were completed using Microsoft Excel. Physical (water temperature, reservoir elevation) parameters were averaged daily for comparison between years and during sampling periods. Catch per unit effort (CPUE) was calculated for each year as total juvenile White Sturgeon captures per effort hour. Biological data collected and analyzed in this report included fork length (cm) and weight (kg). Fish were aged by scanning for a PIT tag and determining year class. Total and annual growth was calculated for each individual and compared by year class. Total growth was calculated by subtracting the size (length and weight) at release from the capture size. Annual growth was calculated by dividing the total growth by the number of days at large and multiplying by 365. Incidental bycatch counts were represented graphically by gear type and mortality/survival. Spatial distribution of juvenile White Sturgeon in the MCR was recorded in the field using a GPS and plotted on a map using ArcMap (Version 9.3.1, ArcGIS by ESRI).

3.0 RESULTS

3.1 Physical Habitat Parameters

Water temperatures followed a similar trend in all study years in the mid-Columbia River, increasing through the summer and reaching the highest temperatures (~11.5°C) in early September (Figure 2). Water temperatures stayed warmer into the fall of 2015 compared to previous years, likely due to lower reservoir levels at this time. The mean water temperature during the 2013, 2014 and 2015 sampling sessions was 9.8, 10.0 and 10.3, respectively.

Reservoir elevations (meters above sea level, MASL) were comparable in the 2013 and 2014 sampling periods, peaking in July around 440 MASL and then decreasing thereafter (Figure 3). In comparison, 2015 reservoir levels were lower from June – October as Arrow Lakes Reservoir was in proportional draft under the Columbia River Treaty where additional water was released for requirements in the United States. As a result, the lower reservoir elevations limited the area sampled north of Shelter Bay in fall 2015. Reservoir levels averaged 431.9 MASL in the short session in 2013, and ranged from 437.5 – 432.5 MASL in 2014 and from 433.9 - 429.1 MASL in 2015 (Figure 3). Mean daily discharge (cubic meters per second, cms) levels recorded at BC Hydro's Revelstoke Dam were highest in 2015 (Figure 4) compared to 2013 and 2014 as additional water was being released from Mica Dam upstream to balance Arrow Lakes Reservoir levels.

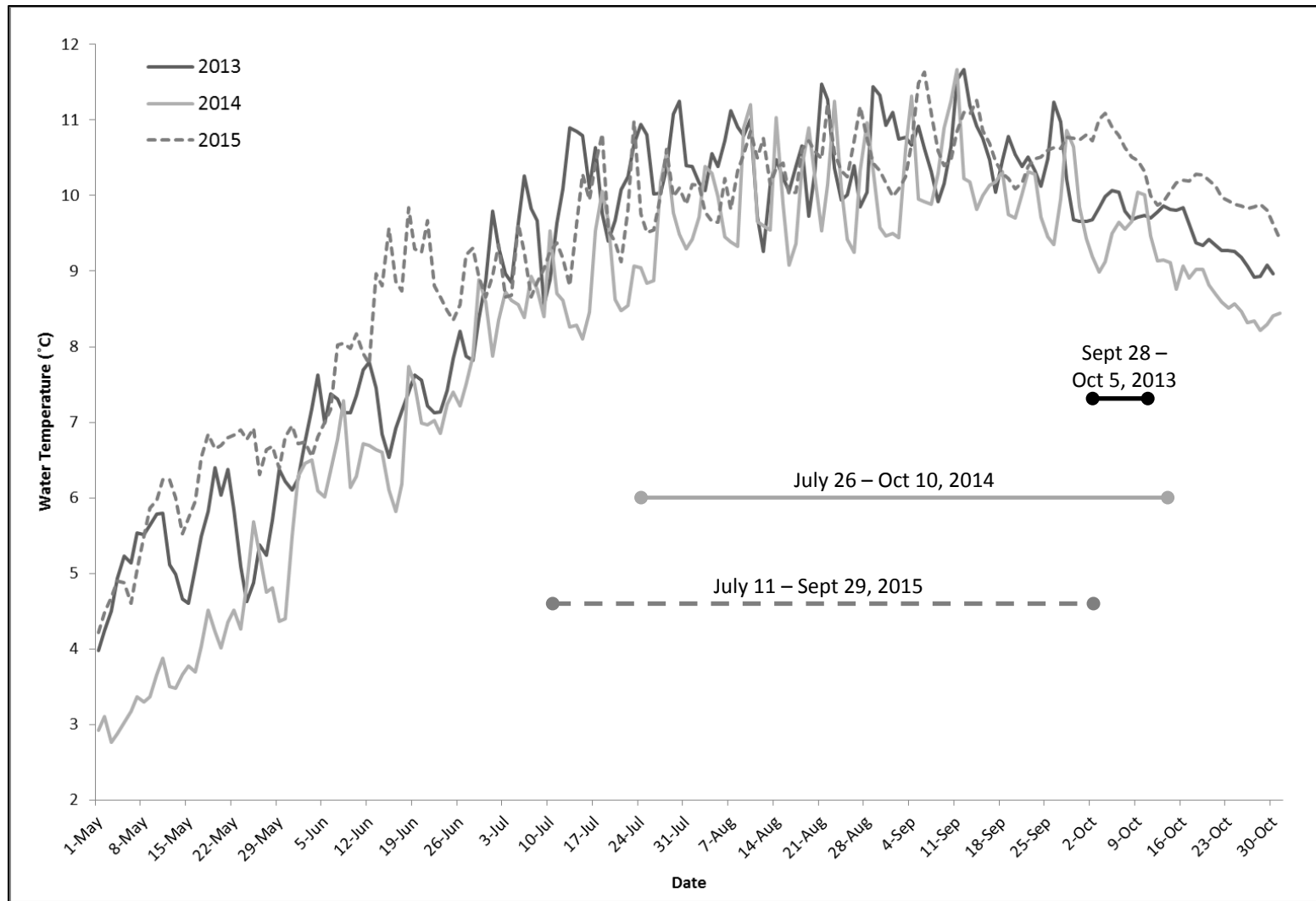


Figure 2: Mean daily water temperature data (°C) recorded at Stations 6 (2013 and 2014 data; Rkm 219.7) and 3 (2015 data; Rkm 231.9) of the Physical Habitat Monitoring Program (CLBMON15a) representative of the Columbia River upstream of the CLBMON21 study sites (data acquired from LGL and ONA 2015 and BC Hydro 2015). Sampling dates are outlined separately showing the time of year and relative water temperatures in each year.

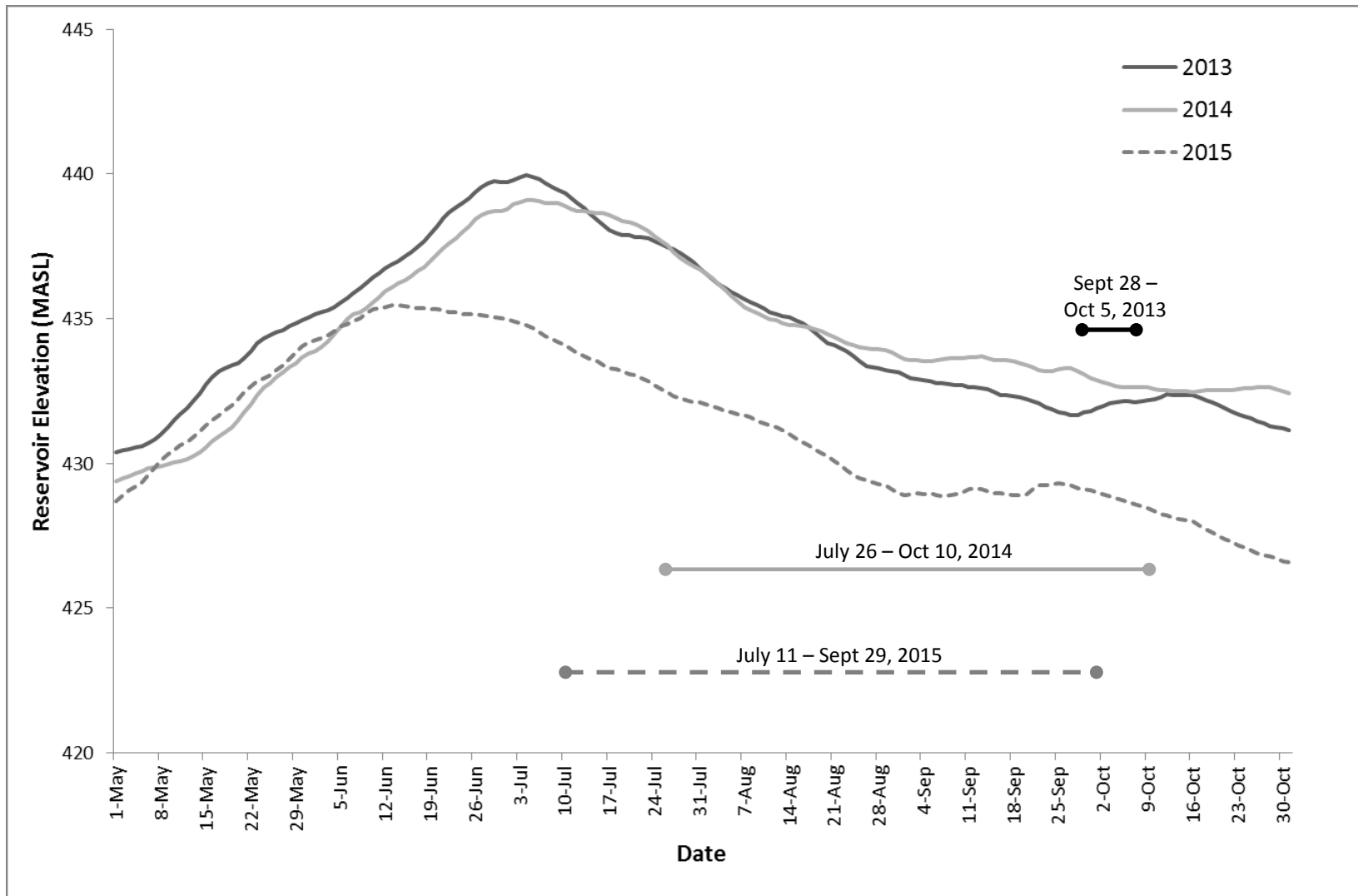


Figure 3: Mean daily reservoir elevation (MASL) recorded at Fauquier, BC for May 1st through October 30th 2013-2015. The period in which sampling was conducted each year is noted (data provided by BC Hydro 2016).

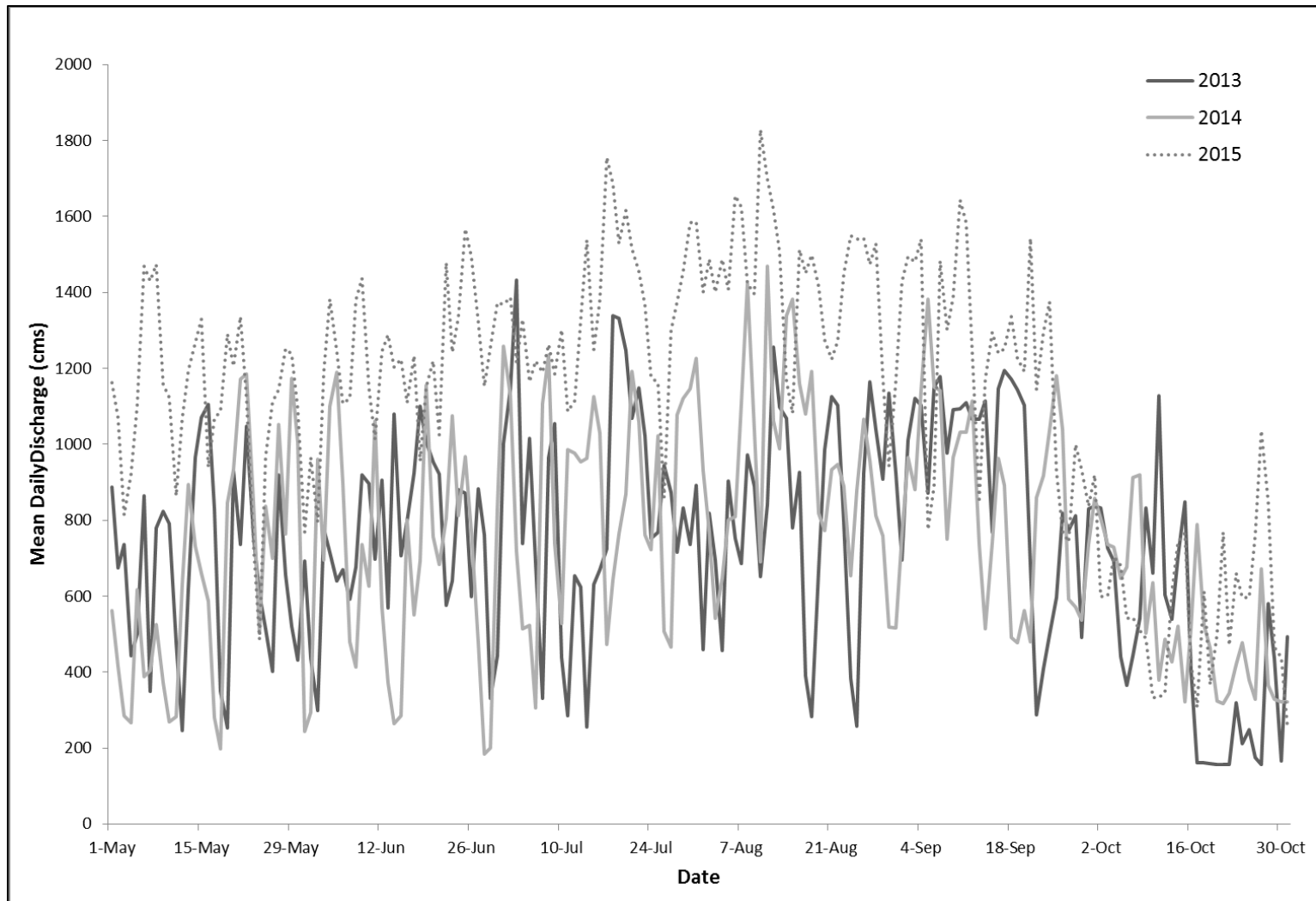


Figure 4: Mean daily discharge (cms) recorded at the Revelstoke Dam for May 1st through October 30th 2013-2015 (data provided by BC Hydro 2016).

3.2 Field Sampling Effort

The amount of sampling effort expended in this project has increased substantially from 2013 to 2015 (Table 2). Of all study years inclusive in this report, 2014 was the most successful in juvenile White Sturgeon captures. CPUE was very low in all study years.

Table 2: Sampling effort by year and gear type inclusive of Golder, ONA and BC Hydro efforts and including juvenile Sturgeon releases at Shelter Bay since 2007.

Study Year	No. Released	Cumulative Total Released	Gill Net Effort		Set Line Effort		CPUE
			Hours	No. Captured	Hours	No. Captured	
2007-2012	43178	43178					
2013	5944	49122	122	0	484	0	0
2014	3288	52410	368	7	2398	4	< 0.1
2015	6013	58423	699	1	3268	0	< 0.1

3.3 Capture Results

2013 Results

A total of 55 sites were sampled in 2013 using 23 set lines and 32 gill nets. No juvenile White Sturgeon were captured in 2013. Total bycatch amounted to 140 fish with 26 mortalities (15%), however Bull Trout (*Salvelinus confluentus*) bycatch mortality was highest in gill nets (Figure 5). BC Hydro conducted field sampling concurrently using set lines only, thus the setline bycatches are representative of both ONA and BC Hydro data. Burbot (*Lota lota*) were the most common fish captured using setlines.

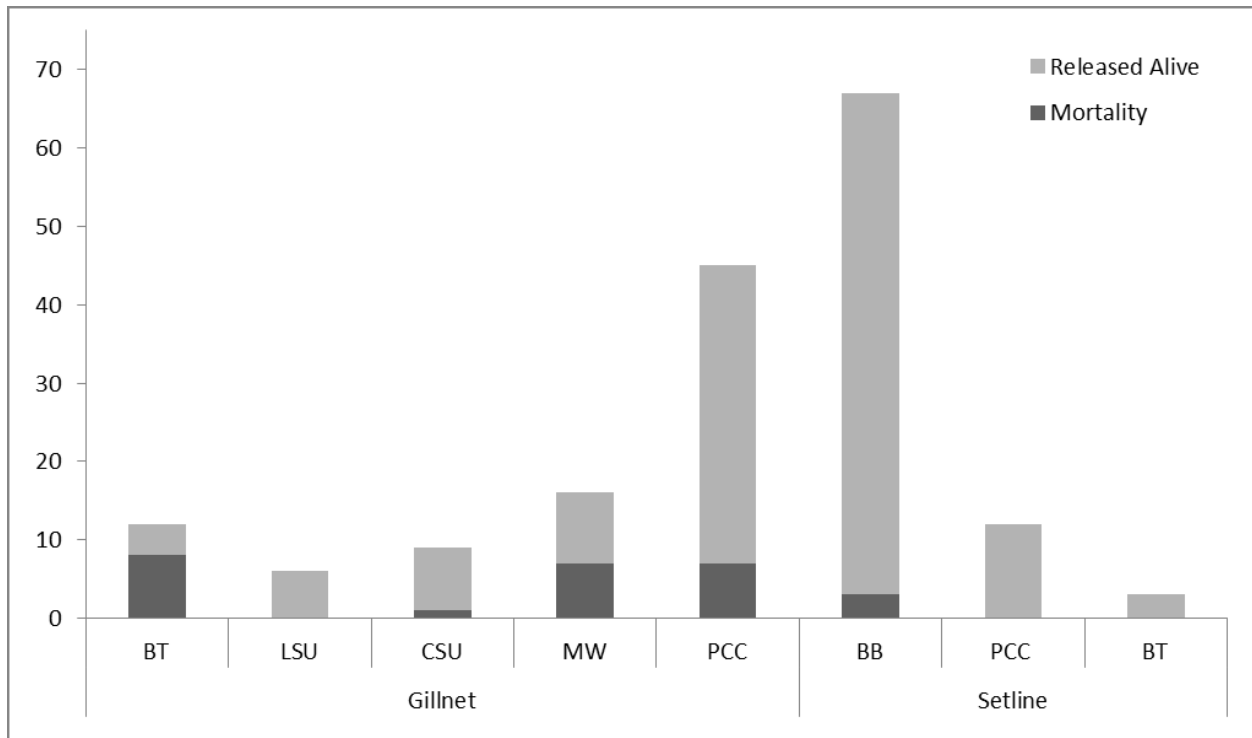


Figure 5: Bycatch by equipment method showing species and amounts captured in 2013 with associated mortality of each species. BT = Bull Trout, LSU = Longnose Sucker, CSU = Largescale Sucker, MW = Mountain Whitefish, PCC = Peamouth Chub, BB = Burbot.

2014 Results

In 2014 a total of 180 sites were sampled using 104 set lines and 78 gill nets. A total of 11 juvenile White Sturgeon were captured between Rkm 192 – 208.5 in 2014 (Table 3). Seven fish were captured using gill nets and four on setlines. All captures occurred north of Shelter Bay area in the riverine section (Figure 6). All Sturgeon possessed PIT tags indicating they were hatchery origin (Figure 7). Six of the captures were from the 2012 year class and another five were from 2013.

Table 3: White Sturgeon captures in the Arrow Lakes Reservoir, 2014. Capture on Oct 2, 2014 was by BC Hydro.

Capture Date	Size at Capture		PIT #	Year Class	Capture Location (RKM)	Gear Type
	Fork Length (cm)	Weight (g)				
August 18	41.0	430.0	985121021237770	2012	196.2	Gillnet
September 19	36.0	290.0	985121021022825	2012	192.0	Gillnet
September 20	44.5	-	985121022993261	2012	195.4	Gillnet
September 21	41.5	520.0	985121022551813	2012	196.0	Setline
September 22	36.8	300.0	985121021228780	2012	200.1	Gillnet
September 23	32.1	180.0	985121021521068	2013	208.5	Gillnet
September 23	34.0	220.0	900254000121376	2013	207.7	Setline
October 2	39.0	380.0	985121021229810	2013	204.0	Setline
October 8	28.0	130.0	900254000145415	2013	208.0	Gillnet
October 9	39.0	330.0	985121021068611	2013	206.0	Setline
October 10	46.5	630.0	985121022567271	2012	199.5	Gillnet

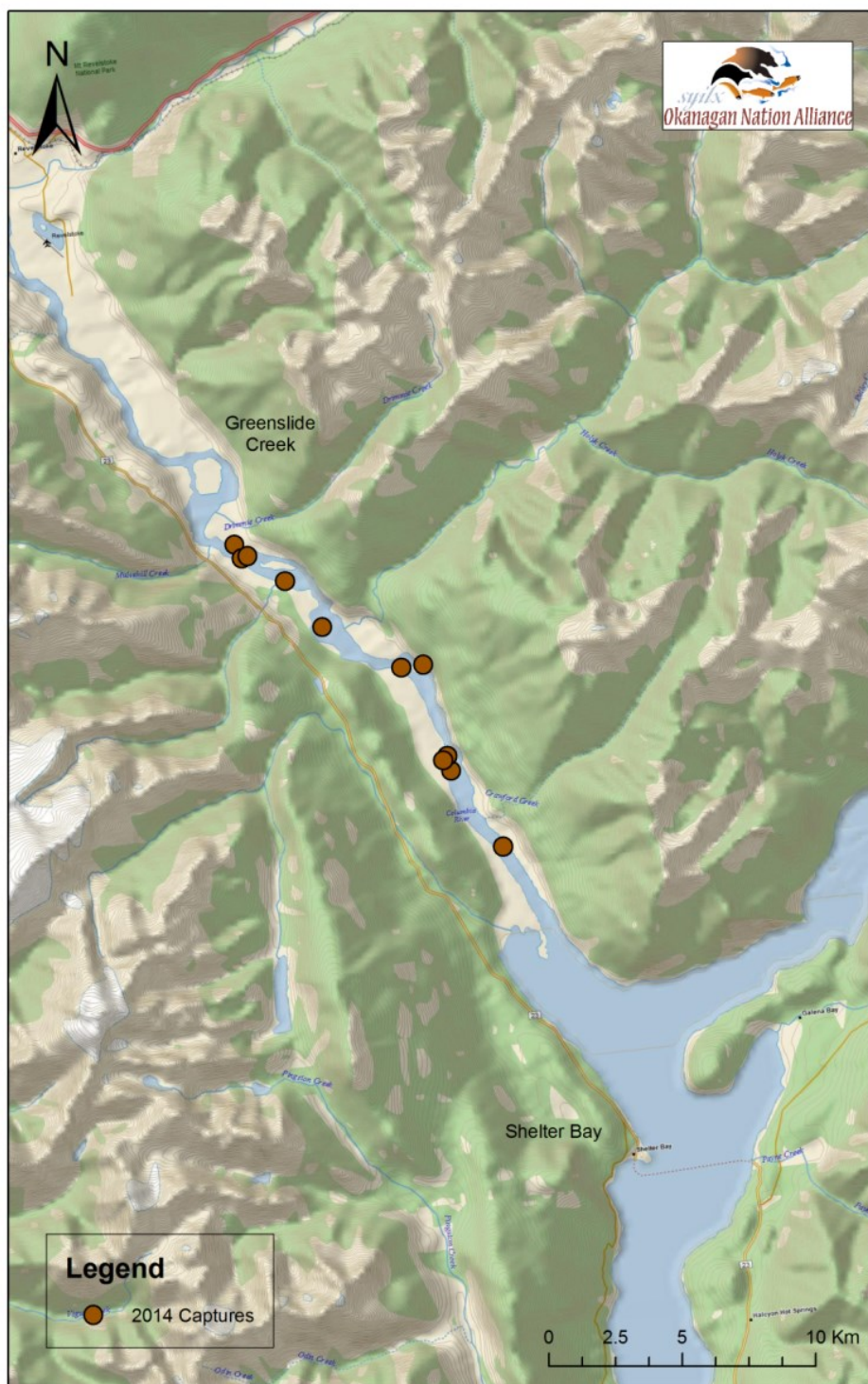


Figure 6: Capture locations of juvenile White Sturgeon via gillnet and set line in 2014.



Figure 7: Juvenile White Sturgeon captured in 2014.

Bycatch numbers are shown in Figure 8. Of the 539 individual fish captured as bycatch, 168 died (31%). Nearly half of the Bull Trout captured in gill nets in 2014 died. Peamouth chub (*Mylcheilus caurinus*) and Mountain Whitefish (*Prosopium williamsoni*) were more commonly captured using gill nets, and set lines best captured Burbot.

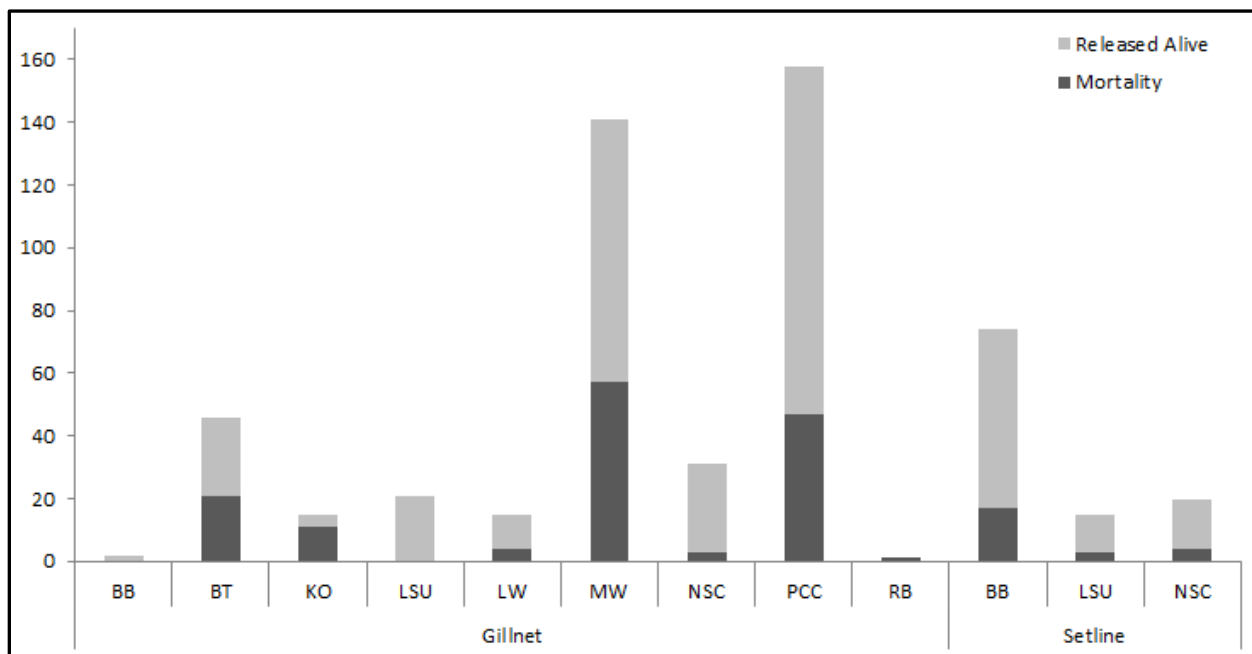


Figure 8: Bycatch by equipment method showing species and amounts captured in 2014 with associated mortality of each species. BB = Burbot, BT = Bull Trout, KO = Kokanee, LSU = Longnose Sucker, LW = Lake Whitefish, MW = Mountain Whitefish, NSC = Northern Pikeminnow, PCC = Peamouth Chub, RB = Rainbow Trout

2015 Results

In 2015, a total of 278 sites were sampled encompassing 125 set lines and 153 gill nets sites. Sampling took place over 45 days from July 11 to Sept 29, 2015. One juvenile White Sturgeon was captured in a gill net near the Shelter Bay boat launch (Table 4, Figure 10). This Sturgeon was from the 2014 year class and had been released in spring 2015.

Table 4: White Sturgeon captures in the Arrow Lakes Reservoir, 2015.

Capture Date	Size at Capture		PIT #	Year class	Capture Location (Rkm)	Gear Type
	Fork Length (cm)	Weight (g)				
Sept 1	30.5	240.0	900254000106540	2014	179.0	Gillnet

A number of species were captured as bycatch throughout the sampling period and the species, count and mortality information is presented in Figure 9. Bycatch mortality in 2015 was similar to 2013 and 2014 and occurred both on set lines (21%) and gill nets (26%).

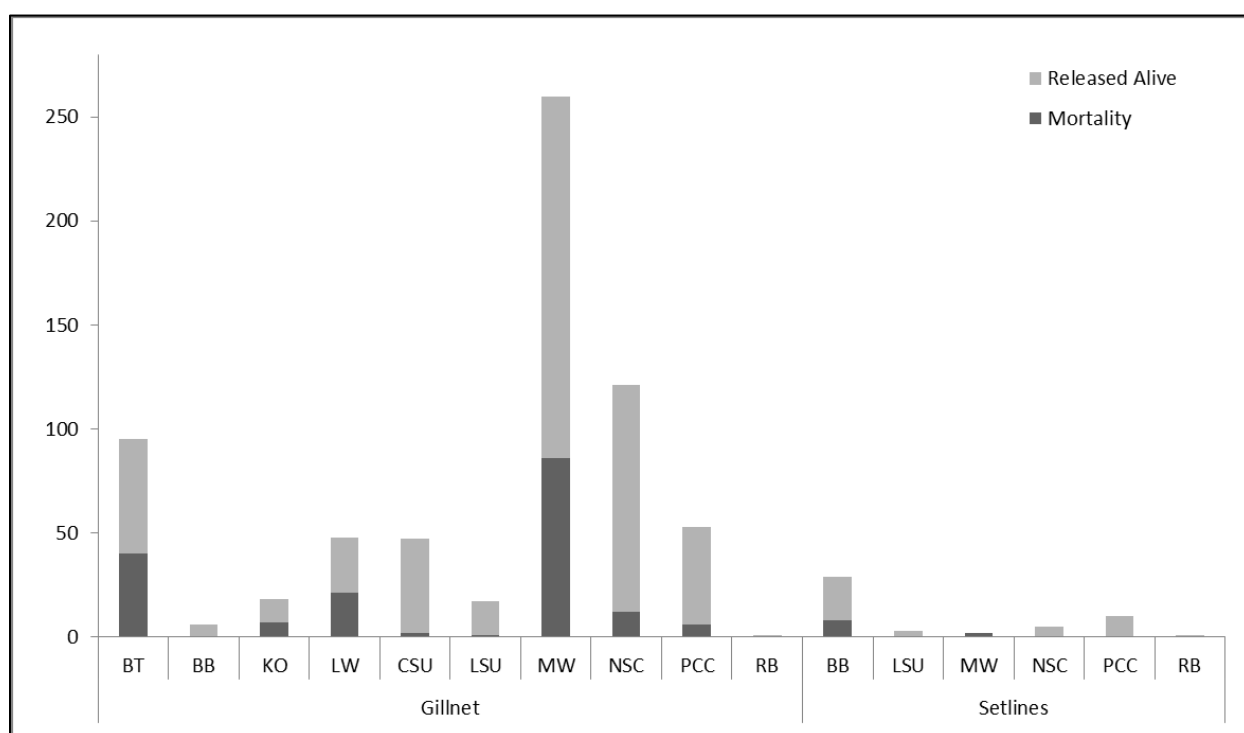


Figure 9: Bycatch data by equipment type showing amount released alive and number of mortalities in 2015. Setline data is inclusive of both BC Hydro and ONA efforts. BT = Bull Trout, BB = Burbot, KO = Kokanee, LW = Lake Whitefish, CSU = Largescale Sucker, LSU = Longnose Sucker, MW = Mountain Whitefish, NSC = Northern Pikeminnow, PCC = Peamouth Chub, RB = Rainbow Trout.

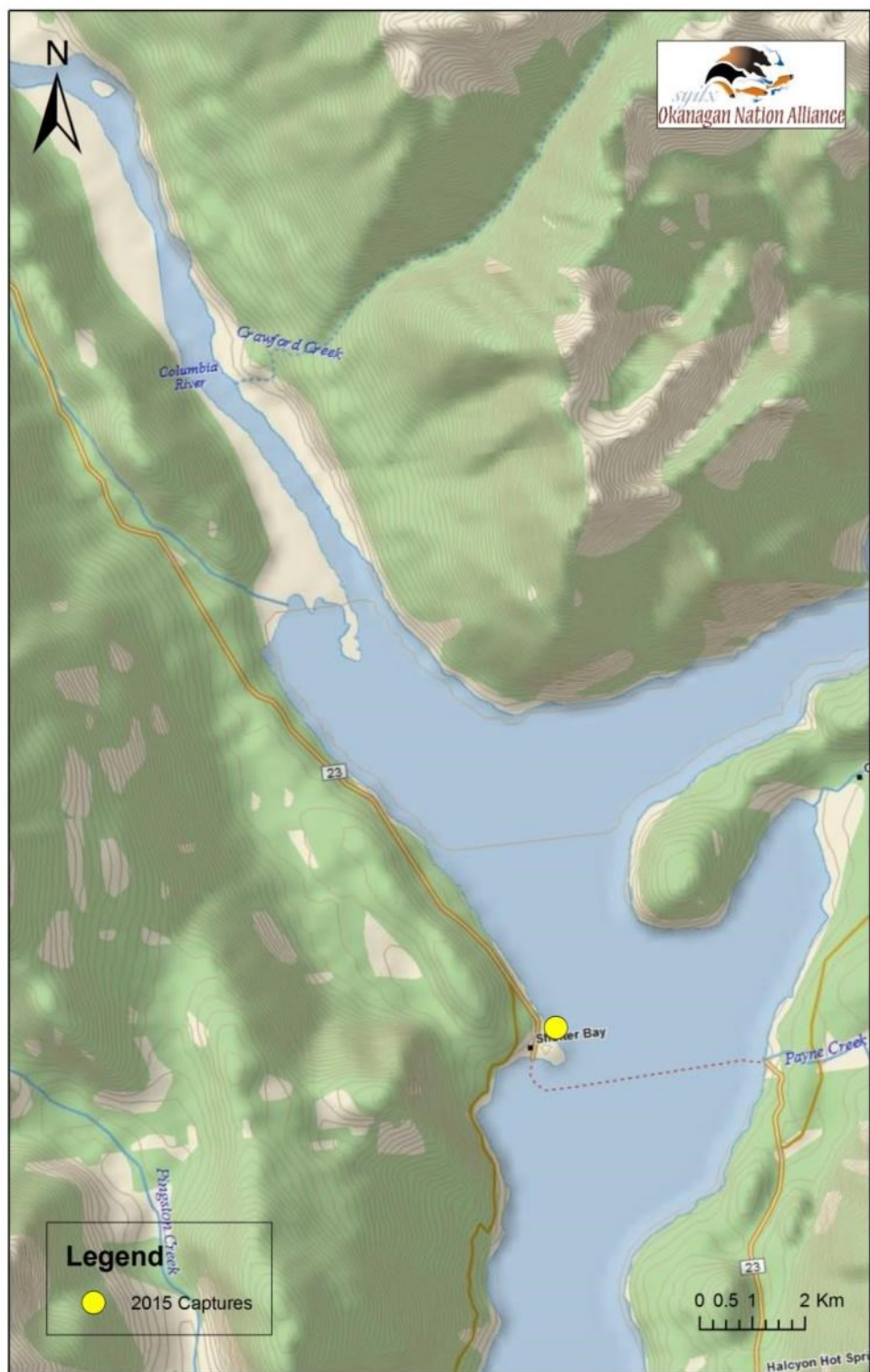


Figure 10: Capture location of juvenile White Sturgeon in 2015 near Shelter Bay Provincial Park boat launch.

3.4 Juvenile Sturgeon Size and Growth

Half of the sturgeon captured had survived one winter at large prior to capture (Table 5). Sturgeon released in 2013 increased in length at higher rate compared to sturgeon from 2012; however sturgeon released in 2012 increased weight at a higher rate in comparison (Figure 11). The mean growth rate/year for length and weight was 8.45 cm and 0.17 kg in 2012 and 14.95 cm and 0.10 kg in 2013.

Table 5: Number of days at large and total growth in length (cm) and weight (kg) for each juvenile White Sturgeon captured in 2014 and 2015.

PIT #	Capture Date (M/D/Y)	Days at Large	Years at Large	Size at Capture		Year Class	Size at Release		Total Growth		Growth/Year	
				Fork Length (cm)	Weight (kg)		Length (cm)	Weight (kg)	Length (cm)	Weight (kg)	Length (cm)	Weight (kg)
985121021237770	8/18/14	466	1.28	41.00	0.43	2012	30.00	0.22	11.00	0.21	8.60	0.16
985121021022825	9/19/14	498	1.36	36.00	0.29	2012	31.00	0.21	5.00	0.08	3.70	0.06
985121022993261	9/20/14	499	1.37	44.50	-	2012	29.00	0.18	15.50	N/A	11.34	N/A
985121022551813	9/21/14	500	1.37	41.50	0.52	2012	30.00	0.20	11.50	0.34	8.40	0.25
985121021228780	9/22/14	501	1.37	36.80	0.30	2012	28.00	0.17	8.80	0.13	6.40	0.09
900254000121376	9/23/14	139	0.38	34.00	0.22	2013	28.00	0.20	6.00	0.02	15.80	0.05
985121021521068	9/23/14	139	0.38	32.10	0.18	2013	28.00	0.20	4.10	-0.02	10.80	-0.06
985121021229810	10/2/14	148	0.41	39.00	0.38	2013	29.00	0.22	10.00	0.16	24.70	0.40
900254000145415	10/8/14	154	0.42	28.00	0.13	2013	28.00	0.20	0.00	-0.07	0.00	-0.17
985121021068611	10/9/14	155	0.42	39.00	0.33	2013	29.00	0.22	10.00	0.11	23.60	0.26
985121022567271	10/10/14	519	1.42	46.50	0.63	2012	29.00	0.18	17.50	0.45	12.30	0.31
900254000106540	9/1/15	117	0.32	30.50	0.24	2014	29.00	0.19	1.50	0.05	4.70	0.17

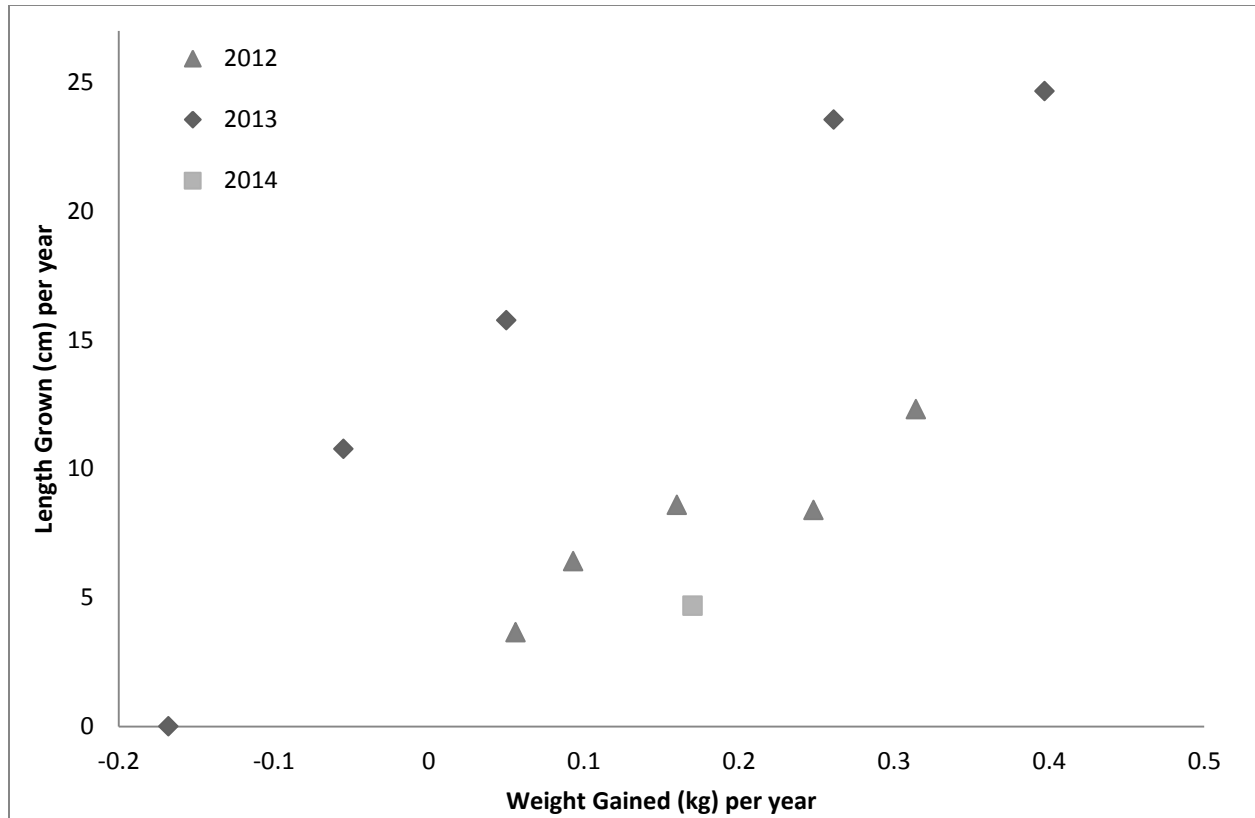


Figure 11: Increase in total length (cm) and total weight (kg) per year by juvenile Sturgeon captured in each year class.

3.5 Habitat Use

All of the juvenile White Sturgeon were captured in the riverine section of the Mid-Columbia River extending from Greenslide Creek to the Shelter Bay boat launch. The mean depth and water temperature data for sites where juvenile White Sturgeon were captured are listed in Table 6. Targeting shallow depths (9-13 m) with cool water temperatures (10-11°C) was most successful for capturing juvenile Sturgeon.

Table 6: Mean depth and temperature of both set line and gill net sites in all years separated by capture success. Data from 2014 are representative of July, August and October sampling only.

Year	Capture?	Mean Setline Depth (m)	Mean Set Water Temperature (°C)	Mean Gill Net Depth (m)	Mean Gill Set Water Temperature (°C)
2013	No	20.1	12.1	16.2	12.1
2014	Yes	13.4	10.1	11.3	10.3
2014	No	8.9	13.6	13.4	13.7
2015	Yes	n/a	n/a	9.0	11.2
2015	No	13.8	13.8	14.4	13.3

4.0 DISCUSSION

The objective of study years 2013-2015 was to maximize juvenile White Sturgeon captures in the Upper Arrow Lakes section of the Columbia River in order to address the management questions posed within the Terms of Reference (BC Hydro 2007). Despite low capture rates of juvenile White Sturgeon in these study years, these data contribute to the current state of knowledge on distribution and growth rates.

Where are the habitat locations utilized by juvenile sturgeon in the mid-Columbia?

All juvenile White Sturgeon captured in 2014 were located within the riverine section of the Mid-Columbia River between Greenslide Creek and Shelter Bay; the Sturgeon captured in 2015 was nearby its initial release site at Shelter Bay. This habitat most closely represents the historical habitat that would have been available in the Columbia River prior to impoundment. No juvenile White Sturgeon were captured within the Upper Arrow Lakes section of the Mid-Columbia River between McDonald Creek and Galena Bay.

Previous efforts aimed at capturing juvenile White Sturgeon between 2007 and 2010 resulted in 10 captures using the same methods employed in the current study (Golder 2011). During this sampling period, an array of telemetry receivers were used to record movement and microhabitat use data for juvenile Sturgeon implanted with acoustic tags which were released annually. Analysis of post-release data showed that juvenile Sturgeon released at upstream sites (in the vicinity of Revelstoke) made rapid movements downstream into deeper habitat providing lower water velocities. Those fish released at downstream sites exhibited variable movements with no trend being evident (Golder 2011).

The resulting low capture rates spurred the initiation of a program in 2012 aimed at documenting fine-scale movements in relation to environmental parameters (e.g. water levels) using acoustic receivers to provide more detailed information on the habitat use of juvenile White Sturgeon (Golder and ONA 2013). In 2012, 50 juvenile White Sturgeon tagged with acoustic transmitters were released into a 3 km section of the mid-Columbia River where an array of 29 acoustic receivers were positioned with the intent of collecting more detailed movement and habitat use information. The study found that both habitat use and movements appear to change seasonally, and that juvenile Sturgeon use a range of water depths throughout the year but most commonly used the thalweg portion of the river. Juvenile White Sturgeon were found to use shallow and floodplain areas in summer and fall but rarely throughout the spring; juveniles were also found to use shallow water in all reservoir elevations. Daily movements also varied between seasons and were more frequent, faster and longer in summer compared to spring and fall (Golder and ONA 2013).

What are the physical and hydraulic properties of this habitat that define its suitability as juvenile sturgeon habitat?

The primary objective of field sampling in 2013-2015 was to expend maximum effort capturing juvenile White Sturgeon, therefore data is limited on the specific physical and hydraulic properties of locations where White Sturgeon were captured. However, Sturgeon captured in 2014 and 2015 occurred when water temperatures were $< 12^{\circ}\text{C}$ at set depths between 9-11 m.

What is the quantity of available habitat meeting these conditions in the mid-Columbia?

Insufficient data is available to accurately address this question at this time. Bathymetry data and sophisticated modelling could be used to determine the amount of suitable habitat for juvenile White Sturgeon in the mid-Columbia River including the Upper and Lower Arrow Lakes, which could vary based on reservoir operations. Capture data from 2014 and 2015 indicate juvenile White Sturgeon primarily use transitional riverine habitats north of their release site (Shelter Bay), spanning approximately 45 km straight line distance up to Drimmie Creek just south of Greenslide Creek. Physical and hydraulic modelling based on reservoir elevation would provide better insight to the amount and availability of habitat suitable for juvenile White Sturgeon in the mid-Columbia River.

How do hydraulic conditions resulting from dam and reservoir operations relate to habitat suitability for juvenile White Sturgeon in the mid-Columbia?

The results from these study years did not provide the information required to answer this question. However, previous studies (Golder 2008, 2009, 2010, 2011 and Golder and ONA 2013) identified the habitat use and movements of juvenile White Sturgeon appear to be dependent upon season, and that they are most commonly found within deep, slow-moving environments (i.e., the thalweg portion of the river). Shallow and flood-plain habitats were also used to some degree depending on season; however long distance movements were often recorded from these habitats into thalweg areas during the reservoir's emptying phase. Intuitively, dam and reservoir operations influence the amount of thalweg, floodplain and shallow habitats available seasonally for juvenile White Sturgeon, which may consequently affect movements. However, juvenile White Sturgeon tend to use the deeper habitats which are available under most operating regimes.

What are the survival rates of juvenile White Sturgeon in the Middle Columbia River?

Insufficient data is available to address this question at this time. However, since 2013 the Conservation Aquaculture Program has been increasing the size of juvenile White Sturgeon being released in an attempt to address overwinter survival. Prior to 2013 Sturgeon were released at weights ranging between 55 – 81 g, however the average size at release was nearly doubled between 2013-2015, and increased again in 2016 (Table 7). The targeted size at release for 2017-

2018 is 300 g with the hope that this increased size will reduce predation and provide sufficient resources to survive overwinter.

Table 7: Release information by year for the Conservation Aquaculture Program on the Arrow Lakes Reservoir showing number of juvenile White Sturgeon released by year and the mean size at release.

Year	Number Released	Cumulative	Number Recaptured	Size at Release
2007	4,206	4,206	0	58.6
2008	6,534	10,740	4	60.9
2009	8,168	18,908	2	66.3
2010	9,625	28,533	4	80.7
2011	8,078	36,611	No sampling	55.0
2012	6,567	43,178	No sampling	81.0
2013	5,944	49,122	0	154.0
2014	3,288	52,410	11	147.8
2015	6,013	58,423	1	202.0
2016	1,301	59,724	N/A	400.0

Recapture rates in the mid-Columbia River have been low in all years of sampling (total captures = 22, 2007-2015). Although definitive conclusions cannot be drawn from this limited data, the low recapture rate may suggest a hindrance to juvenile White Sturgeon survival. Despite this, 12 of the 22 captures throughout the entire study period had survived at least one winter prior to capture; one of these fish had survived two winters. In total, 10 of the 22 captures were Age 1, 11 were Age 2 and one was Age 3.

Compared to similar juvenile White Sturgeon monitoring programs (including those supplemented by hatchery releases), the recapture rate in the mid-Columbia is low. For example, efforts on the lower-Columbia River using similar methods resulted in recapture rates of 0.84 and 1.12 CPUE in 2011 and 2012, respectively (BC Hydro 2015). Trawling and tangle netting efforts in the Fraser River resulted in 35 juvenile White Sturgeon captures in 2009 and 2010 however effort data was not reported therefore CPUE comparisons cannot be made (Glova *et al.* 2010). Comparative to the results of this report, few juvenile White Sturgeon were captured in the Nechako River in 2009 using set line and angling methods resulting in a CPUE of 0.02 (Courtier 2010).

In order to address survival in this program, increased captures and/or identification of sources of mortality are required. Increasing sampling effort and targeting areas of previous capture in all seasons may aid in capturing more juvenile Sturgeon. Efforts to reduce bycatch mortality, especially for Bull Trout (*Salvelinus confluentus*), however, limit the duration of sets and sampling locations depending on time of year (see Golder 2011).

Can modifications be made to the operations of Revelstoke Dam and/or Arrow Lakes Reservoir to protect or enhance juvenile White Sturgeon habitat?

Capture results to date have primarily been successful in the riverine section of the Columbia River between Greenslide Creek and Shelter Bay. This section of river is sensitive to daily fluctuations in water levels resulting from discharge rates from the Revelstoke Dam, especially during very low Arrow Lakes Reservoir levels. However, based on the results of the last nine years of sampling and research, juvenile White Sturgeon appear to prefer deep, slow moving environments found within the thalweg portion of the Columbia River. These habitats are available between Shelter Bay and Greenslide Creek and downstream of Shelter Bay. Sampling in the riverine section becomes challenging when Arrow Reservoir elevations are below 430 MASL due to shallow water.

5.0 RECOMMENDATIONS

Based on the low capture successes from 2013 – 2015 and previous years, the ONA is proposing to significantly increase sampling effort (duration) in the 2016 field season. Based on the capture results from 2013-15, we recommend increasing the density of sample sites near locations of previous capture. Sampling below Beaton Flats and into the Lower Arrow Lakes would provide insight as to whether Sturgeon are able to travel long distances to meet habitat requirements. As well, extending the sampling period further into the fall (September-October) when the majority of captures have occurred previously may increase capture success.

The ONA and BC Hydro are also investigating the potential to conduct a pilot study on gear efficiency following hatchery releases in May 2016. The objective of this 5-day study would be to intensively sample locations near Shelter Bay immediately post-release to determine the efficiency of the gear types being used. The results of this work may contribute to future study designs for juvenile White Sturgeon-targeted sampling.

The 2016 field season will also include additional physical habitat sampling methods in locations where juvenile White Sturgeon are captured (e.g. water velocity). In addition to the measurements already recorded when setting nets (water depth, water temperature), crews will collect a substrate sample in areas with successful sturgeon captures. Crews will use a Ponar or Ekman dredge to grab the substrate, and preserve the sample in a jar with ethanol. Substrate samples will be analyzed for presence and identification of benthic invertebrates, providing an indication of food availability and type at the sturgeons' location. Bottom water velocities should be collected when possible using an Acoustic Doppler Current Profiler (ADCP). Crews will also conduct gastric lavage and collect blood samples on captured sturgeon following additional procedural training acquired prior to the field season.

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7.0 CLOSURE

Okanagan Nation Alliance



Amy Duncan, M.Sc.
Biologist



Michael Zimmer, M.Sc., RPBio
Fisheries Biologist

APPENDIX B: RAW FIELD DATA 2013-2015

ONA + BC Hydro Setline Catch Data 2013.

RKM	UTM		Date and Time				WSG	Bycatch
	Easting	Northing	Set	Pull	Effort			
SL130.0R	440561	5563249	10/5/13 14:11	10/6/13 12:09	21:58	0	7	
SL127.9L	443778	5563088	10/5/13 14:29	10/6/13 12:34	22:05	0	2	
SL124.8L	443609	5559526	10/5/13 14:47	10/6/13 12:52	22:05	0	0	
SL122.7R	441515	5556867	10/5/13 15:07	10/6/13 13:11	22:04	0	1	
SL130.5R	439819	5564040	10/4/13 14:46	10/5/13 9:58	19:12	0	2	
SL132.8R	438639	5566128	10/4/13 15:06	10/5/13 10:14	19:08	0	1	
SL133.7L	441202	5568338	10/4/13 15:35	10/5/13 10:31	18:56	0	0	
SL136.2L	441056	5570020	10/4/13 15:54	10/5/13 10:48	18:54	0	0	
SL139/6L	438653	5573240	10/3/13 14:47	10/4/13 10:31	19:44	0	6	
SL140.9R	435235	5573249	10/3/13 15:13	10/4/13 11:02	19:49	0	1	
SL144.5L	436650	5577044	10/3/13 15:33	10/4/13 11:24	19:51	0	6	
SL147.2L	436447	5579742	10/3/13 15:54	10/4/13 11:49	19:55	0	0	
SL147.5L	436440	5579785	10/2/13 14:40	10/3/13 10:17	19:37	0	1	
SL149/9R	434151	5581998	10/2/13 14:55	10/3/13 10:33	19:38	0	0	
SL151.6L	433972	5584116	10/2/13 15:20	10/3/13 10:50	19:30	0	0	
SL154.3L	436376	5587644	10/2/13 15:53	10/3/13 11:15	19:22	0	0	
SL158.5L	435111	5591266	10/1/13 15:20	10/2/13 10:38	19:18	0	3	
SL159.4R	432181	5591340	10/1/13 15:34	10/2/13 10:59	19:25	0	2	
SL162/4R	432384	5594602	10/1/13 15:50	10/2/13 11:19	19:29	0	2	
SL164.7R	432673	5596447	10/1/13 16:02	10/2/13 11:36	19:34	0	2	
SL167.2R	432868	5599310	9/29/13 14:57	9/30/13 14:00	23:03	0	0	
SL169.3L	436205	5601277	9/29/13 15:13	9/30/13 12:55	21:42	0	1	
SL170.8L	435548	5603493	9/29/13 15:30	9/30/13 12:02	20:32	0	7	

SL174.7R 433596 5607231 9/29/13 15:51 9/30/13 10:59 19:08 0 4

ONA + BC Hydro Gillnet Catch Data 2013.

RKM	UTM		Date and Time		Effort	WSG	Bycatch
	Easting	Northing	Set	Pull			
GN183.5L	434623	5614879	9/28/13 12:09	9/28/13 15:27	3:18	0	0
GN180.9R	434282	5611647	9/28/13 12:46	9/28/13 15:50	3:04	0	2
GN178.6R	439938	5600904	9/28/13 13:38	9/28/13 16:29	2:51	0	1
GN175.0L	437355	5606542	9/28/13 14:41	9/28/13 17:03	2:22	0	2
GN172.2R	433036	5604154	9/29/13 10:45	9/29/13 16:06	5:21	0	3
GN170.1L	432725	5602156	9/29/13 11:35	9/29/13 16:36	5:01	0	0
GN168.7R	432616	5601640	9/29/13 11:52	9/29/13 16:48	4:56	0	7
GN166.1R	435966	5596792	9/29/13 12:27	9/29/13 17:19	4:52	0	3
GN162.9R	435662	5594779	10/1/13 11:50	10/1/13 16:15	4:25	0	12
GN161.2L	435347	5593469	10/1/13 12:05	10/1/13 16:58	4:53	0	3
GN158.9L	435085	5591185	10/1/13 12:24	10/1/13 17:12	4:48	0	1
GN157.3L	432085	5589290	10/1/13 12:45	10/1/13 17:36	4:51	0	1
GN156.4L	432136	5588896	10/2/13 12:37	10/2/13 16:12	3:35	0	0
GN153.4L	436092	5585889	10/2/13 12:57	10/2/13 16:43	3:46	0	3
GN150.9L	433807	5584510	10/2/13 13:24	10/2/13 17:06	3:42	0	2
GN148.5R	433464	5581012	10/2/13 13:45	10/2/13 17:28	3:43	0	1
GN145.3L	436302	5578512	10/3/13 11:55	10/3/13 16:09	4:14	0	2
GN141.2R	434691	5574258	10/3/13 12:20	10/3/13 16:31	4:11	0	5
GN140.7L	438738	5572989	10/3/13 13:17	10/3/13 17:05	3:48	0	4
GN138.9R	436557	5570830	10/3/13 13:41	10/3/13 17:25	3:44	0	1
GN137.0R	437408	5569787	10/4/13 12:28	10/4/13 16:13	3:45	0	2
GN135.5L	440992	5569310	10/4/13 12:49	10/4/13 16:37	3:48	0	4
GN133.6R	438495	5566574	10/4/13 13:11	10/4/13 17:00	3:49	0	3

GN132.4R	438820	5565544	10/4/13 13:28	10/4/13 17:18	3:50	0	0
GN128.8R	441038	5562036	10/5/13 11:33	10/5/13 15:35	4:02	0	0
GN125.3	440785	5560061	10/5/13 11:56	10/5/13 13:48	1:52	0	2
GN123.8L	443563	5558238	10/5/13 12:20	10/5/13 16:05	3:45	0	6
GN122.5R	441509	5556748	10/5/13 12:51	10/5/13 16:27	3:36	0	1
GN126.4L	441959	5554100	10/6/13 10:42	10/6/13 13:44	3:02	0	0
GN126.2R	441920	5554902	10/6/13 10:59	10/6/13 14:04	3:05	0	0
GN124.1R	441020	5558320	10/6/13 11:40	10/6/13 14:41	3:01	0	28
GN121.6L	442549	5556307	10/6/13 11:21	10/6/13 14:16	2:55	0	3

ONA + BC Hydro Setline Catch Data 2014.

Site	UTMs		Set Date	Set Time	Pull Date	Pull Time	Soak Time	WSG Catch Summary	Bycatch
	Easting	Northing							
SL134.3R	438383	5567388	7/25/2014	4:10:00 PM	7/26/2014	2:30:00 PM	22:20	0	4
SL131.0L	44175	5565552	7/25/2014	3:43:00 PM	7/26/2014	2:15:00 PM	22:32	0	1
SL129.8L	443398	5564305	7/25/2014	3:00:00 PM	7/26/2014	1:56:00 PM	22:56	0	2
SL126.8R	440846	5560977	7/25/2014	2:30:00 PM	7/26/2014	1:28:00 PM	22:58	0	5
SL126.2R	440715	5560373	7/25/2014	1:55:00 PM	7/26/2014	1:17:00 PM	23:22	0	0
extraSL	440977	5553795	7/24/2014	2:32:00 PM	7/25/2014	12:06:00 PM	21:34	0	1
extraSL	440073	5552720	7/24/2014	2:50:00 PM	7/25/2014	10:52:00 AM	20:02	0	0
SL121.6L	442426	5555904	7/24/2014	2:13:00 PM	7/25/2014	12:29:00 PM	22:16	0	0
SL124.1R	440996	5558288	7/24/2014	4:40:00 PM	7/25/2014	12:45:00 PM	20:05	0	0
SL134.6R	438282	5567826	7/27/2014	3:51:00 PM	7/27/2014	12:01:00 PM	20:10	0	0
SL135.8L	441088	5569983	7/26/2014	4:11:00 PM	7/27/2014	12:18:00 PM	20:07	0	10
SL137.9R	437193	5569989	7/26/2014	4:57:00 PM	7/27/2014	12:51:00 PM	19:54	0	1
SL138.5R	436602	5570785	7/26/2014	5:08:00 PM	7/27/2014	1:07:00 PM	19:59	0	4
SL140.3L	438113	5574341	7/26/2014	5:27:00 PM	7/27/2014	2:10:00 PM	20:43	0	0
SL161.9L	435365	5593408	7/28/2014	3:53:00 PM	7/29/2014	12:00:00 PM	20:07	0	0

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SL163.3L	435686	5594823	7/28/2014	4:03:00 PM	7/29/2014	12:11:00 PM	20:08	0	0
SL163.6R	432655	5596433	7/28/2014	4:15:00 PM	7/29/2014	12:45:00 PM	20:30	0	2
SL165.5L	435780	5597527	7/28/2014	4:26:00 PM	7/29/2014	1:04:00 PM	20:38	0	1
SL166.6L	435683	5599092	7/28/2014	4:38:00 PM	7/29/2014	1:20:00 PM	20:42	0	1
SL142.2	437363	5576160	7/27/2014	3:41:00 PM	7/28/2014	12:40:00 PM	20:59	0	1
SL143.0L	437202	5576275	7/27/2014	3:48:00 PM	7/28/2014	12:50:00 PM	21:02	0	2
SL144.0L	436738	5576857	7/27/2014	4:17:00 PM	7/28/2014	1:15:00 PM	20:58	0	1
SL148.1	436623	5580725	7/27/2014	5:41:00 PM	7/28/2014	1:37:00 PM	19:56	0	0
SL148.8L	436649	5571029	7/27/2014	5:53:00 PM	7/28/2014	1:46:00 PM	19:53	0	2
SL130.0R	440513	5563286	7/30/2014	3:30:00 PM	7/31/2014	10:46:00 AM	19:16	0	0
SL128.8R	440702	5563006	7/30/2014	12:56:00 PM	7/31/2014	10:35:00 AM	21:39	0	0
SL127.9L	443887	5562660	7/30/2014	12:42:00 PM	7/31/2014	10:18:00 AM	21:36	0	1
SL123.8L	443418	5558127	7/30/2014	12:24:00 PM	7/31/2014	10:01:00 AM	21:37	0	0
SL132.4R	438629	5566003	7/30/2014	3:54:00 PM	7/31/2014	10:59:00 AM	19:05	0	0
SL180.9R	434443	5611270	8/15/2014	1:46:00 PM	8/16/2014	10:17:00 AM	20:31	0	0
SL183.0R	434592	5613773	8/15/2014	2:28:00 PM	8/16/2014	10:32:00 AM	20:04	0	2
SL183.5L	434758	5614115	8/15/2014	2:40:00 PM	8/16/2014	10:47:00 AM	20:07	0	0
SL183.9R	434291	5614593	8/15/2014	3:02:00 PM	8/16/2014	10:59:00 AM	19:57	0	0
SL180.1R	434597	5610846	8/15/2014	1:27:00 PM	8/16/2014	10:17:00 AM	20:50	0	0
SL181.2L	436522	5611811	8/16/2014	2:06:00 PM	8/17/2014	10:18:00 AM	20:12	0	0
SL184.9R	433355	5615139	8/16/2014	2:20:00 PM	8/17/2014	10:36:00 AM	20:16	0	0
SL185.6R	433470	5615662	8/16/2014	2:32:00 PM	8/17/2014	10:50:00 AM	20:18	0	0
SL186.4R	433001	5616705	8/16/2014	2:43:00 PM	8/17/2014	11:00:00 AM	20:17	0	0
SL187.8L	432488	5617893	8/16/2014	2:51:00 PM	8/17/2014	11:09:00 AM	20:18	0	0
SL189.5R	431687	5619537	8/17/2014	1:22:00 PM	8/18/2014	10:22:00 AM	21:00	0	0
SL190.3L	431729	5620158	8/17/2014	1:32:00 PM	8/18/2014	10:46:00 AM	21:14	0	0
SL191.4L	431206	5621263	8/17/2014	1:41:00 PM	8/18/2014	10:55:00 AM	21:14	0	0
SL193.9L	429791	5623279	8/17/2014	1:53:00 PM	8/18/2014	11:11:00 AM	21:18	0	0
SL194.8L	429426	5624095	8/17/2014	2:15:00 PM	8/18/2014	11:20:00 AM	21:05	0	0

SL196.0L	429377	5625127	8/18/2014	2:33:00 PM	8/19/2014	11:00:00 AM	20:27	0	0
SL196.7L	429350	5625940	8/18/2014	2:41:00 PM	8/19/2014	11:10:00 AM	20:29	0	0
SL197.1R	429040	5626354	8/18/2014	2:50:00 PM	8/19/2014	11:20:00 AM	20:30	0	0
SL197.8R	428886	5627009	8/18/2014	2:58:00 PM	8/19/2014	11:34:00 AM	20:36	0	0
SL198.3L	429042	5627532	8/18/2014	3:09:00 PM	8/19/2014	11:47:00 AM	20:38	0	0
SL201.6L	426638	5629474	8/19/2014	2:21:00 PM	8/20/2014	11:08:00 AM	20:47	0	0
SL202.0L	426363	5629766	8/19/2014	2:30:00 PM	8/20/2014	11:17:00 AM	20:47	0	0
SL203.0R	425436	5630319	8/19/2014	2:41:00 PM	8/20/2014	11:35:00 AM	20:54	0	0
SL203.4R	425180	5630683	8/19/2014	2:52:00 PM	8/20/2014	11:47:00 AM	20:55	0	0
SL204.5L	425279	5631814	8/20/2014	2:39:00 PM	8/21/2014	10:37:00 AM	19:58	0	0
SL206.0L	424151	5632885	8/20/2014	2:49:00 PM	8/21/2014	10:48:00 AM	19:59	0	0
SL207.7L	422683	5633690	8/20/2014	3:02:00 PM	8/21/2014	10:58:00 AM	19:56	0	0
SL208.8R	421747	5634285	8/20/2014	3:10:00 PM	8/21/2014	11:11:00 AM	20:01	0	0
SL209.2L	421371	5634520	8/20/2014	3:18:00 PM	8/21/2014	11:28:00 AM	20:10	0	0
SL211.6L	421975	5637748	8/21/2014	1:35:00 PM	8/22/2014	11:16:00 AM	21:41	0	0
SL210.8L	422340	5637308	8/21/2014	1:44:00 PM	8/22/2014	11:29:00 AM	21:45	0	1
SL210.6R	422265	5637017	8/21/2014	1:54:00 PM	8/22/2014	11:37:00 AM	21:43	0	0
SL210.3R	422127	5636693	8/21/2014	2:04:00 PM	8/22/2014	11:43:00 AM	21:39	0	0
SL209.5R	421089	5635471	8/21/2014	2:15:00 PM	8/22/2014	11:52:00 AM	21:37	0	0
SL200.7L	427452	5629128	9/19/2014	2:13:00 PM	9/20/2014	10:59:00 AM	20:46	0	0
S186.4R	433846	5616138	10/2/2014	12:36:00 PM	10/3/2014	9:15:00 AM	20:39	0	0
S183.5L	434350	5614165	10/2/2014	12:50:00 PM	10/3/2014	9:26:00 AM	20:36	0	1
S183R	434724	5613779	10/2/2014	1:01:00 PM	10/3/2014	9:39:00 AM	20:38	0	0
S180.9R	434284	5611775	10/2/2014	1:19:00 PM	10/3/2014	9:50:00 AM	20:31	0	2
S187.8	432359	5618219	10/3/2014	11:31:00 AM	10/4/2014	12:40:00 PM	25:09:00	0	2
S189.5R	431851	5619442	10/3/2014	11:43:00 AM	10/4/2014	12:20:00 PM	24:37:00	0	3
S185.6R	432981	5615831	10/3/2014	11:33:00 AM	10/4/2014	12:00:00 PM	24:27:00	0	0
S186.4R	432444	5616447	10/3/2014	11:43:00 AM	10/4/2014	11:48:00 AM	24:05:00	0	1
S190.3L	431484	5620240	10/4/2014	2:04:00 PM	10/5/2014	10:25:00 AM	20:21	0	3

S190.8R	431244	5620670	10/4/2014	2:17:00 PM	10/5/2014	10:35:00 AM	20:18	0	2
S193.9L	429796	5622374	10/4/2014	2:32:00 PM	10/5/2014	10:51:00 AM	20:19	0	3
S184.9R	433185	5615120	10/4/2014	2:57:00 PM	10/5/2014	10:14:00 AM	19:17	0	1
S201.6L	426748	5629321	10/5/2014	1:47:00 PM	10/6/2014	11:32:00 AM	21:45	0	1
S200.7L	427540	5628960	10/5/2014	1:56:00 PM	10/6/2014	11:16:00 AM	21:20	0	2
S196.7L	429255	5625827	10/5/2014	2:13:00 PM	10/6/2014	10:58:00 AM	20:45	0	0
S196L	429283	5625154	10/5/2014	2:22:00 PM	10/6/2014	10:47:00 AM	20:25	0	1
S207.7L	422772	5633586	10/8/2014	12:45:00 PM	10/9/2014	12:25:00 PM	23:40	0	1
S206L	423988	5632651	10/8/2014	12:57:00 PM	10/9/2014	11:46:00 AM	22:49	1	0
S204.5L	425184	5631885	10/8/2014	1:07:00 PM	10/9/2014	11:31:00 AM	22:24	0	3
S203R	425480	5630248	10/8/2014	1:24:00 PM	10/9/2014	11:16:00 AM	21:52	0	1
S209.2L	421298	5634540	10/9/2014	3:20:00 PM	10/10/2014	1:40:00 PM	22:20	0	2
S208.8R	421659	5634442	10/9/2014	3:28:00 PM	10/10/2014	1:13:00 PM	21:45	0	0
S208.8R	421747	5634377	10/9/2014	3:34:00 PM	10/10/2014	1:00:00 PM	21:26	0	2
S207.7L	422740	5633534	10/9/2014	3:47:00 PM	10/10/2014	12:44:00 PM	20:57	0	1
S194.8L	429446	5623977	10/10/2014	4:18:00 PM	10/11/2014	12:16:00 PM	19:58	0	2
S193.9L	429691	5623171	10/10/2014	4:26:00 PM	10/11/2014	12:30:00 PM	20:04	0	2
S191.4L	431213	5621115	10/10/2014	4:42:00 PM	10/11/2014	12:43:00 PM	20:01	0	1
S190.8R	431343	5620594	10/10/2014	4:49:00 PM	10/11/2014	12:54:00 PM	20:05	0	0
S01	422227	5634180	09/30/2010	14:15	10/01/2010	09:03	18.80	0	0
S02	422415	5633691	09/30/2010	14:21	10/01/2010	09:10	18.82	1	0
S03	422526	5633608	09/30/2010	14:39	10/01/2010	09:32	18.88	0	0
S04	422923	5632685	09/30/2010	14:59	10/01/2010	09:45	18.77	0	0
S05	425309	5632028	09/30/2010	15:15	10/01/2010	09:58	18.72	0	0
S06	425173	5630761	09/30/2010	15:27	10/01/2010	10:15	18.80	1	1
S07	425286	5630806	10/01/2010	12:46	10/02/2010	12:55	24.15	1	0
S08	425576	5630284	10/01/2010	12:56	10/02/2010	12:42	23.77	0	0
S09	425950	5629918	10/01/2010	13:23	10/02/2010	12:26	23.05	2	0
S10	427795	5629039	10/01/2010	13:58	10/02/2010	12:01	22.05	3	0

S11	425482	5630218	10/01/2010 14:20	10/02/2010 12:23	22.05	0	0
S12	425264	5631449	10/01/2010 14:38	10/02/2010 12:45	22.12	0	0

ONA + BC Hydro Gillnet Catch Data 2014.

Site	UTMs		Set Date	Set Time	Pull Date	Pull Time	Soak Time	WSG Catch Summary	Bycatch
	Easting	Northing							
GN126.4L	444177	5560741	7/25/2014	5:18:00 PM	7/26/2014	12:04:00 PM	18:46	0	13
GN128.5L	443637	5563389	7/25/2014	4:57:00 PM	7/26/2014	11:22:00 AM	18:25	0	6
GN132.1R	440909	5566219	7/25/2014	4:35:00 PM	7/26/2014	10:21:00 AM	17:46	0	22
extra	439773	5552141	7/24/2014	11:31:00 AM	7/24/2014	3:02:00 PM	3:31	0	0
extra	440917	5553612	7/24/2014	12:04:00 PM	7/24/2014	3:44:00 PM	3:40	0	7
GN122.5R	441522	5556714	7/24/2014	12:45:00 PM	7/24/2014	4:08:00 PM	3:23	0	8
extra	439745	5552018	7/24/2014	3:13:00 PM	7/25/2014	10:29:00 AM	19:16	0	9
extra GN	440908	5553614	7/24/2014	3:57:00 PM	7/25/2014	11:07:00 AM	19:10	0	51
GN143.1L	437084	5576332	7/27/2014	10:40:00 AM	7/27/2014	3:52:00 PM	5:12	0	5
GN144.6L	436714	5576965	7/27/2014	10:59:00 AM	7/27/2014	4:21:00 PM	5:22	0	16
GN145.8R	434105	5578221	7/27/2014	11:13:00 AM	7/27/2014	4:52:00 PM	5:39	0	17
GN146.3L	436307	5578554	7/27/2014	11:42:00 AM	7/27/2014	5:17:00 PM	5:35	0	4
GN171.8L	432947	5607022	7/29/2014	11:41:00 AM	7/29/2014	1:38:00 PM	1:57	0	3
GN172.7L	433115	5605810	7/29/2014	11:28:00 AM	7/29/2014	2:11:00 PM	2:43	0	1
GN150.4L	433385	5580943	7/28/2014	10:56:00 AM	7/28/2014	5:50:00 PM	6:54	0	32
GN153.0R	433758	5584566	7/28/2014	11:34:00 AM	7/28/2014	5:25:00 PM	5:51	0	2
GN156.5L	436181	5587887	7/28/2014	11:54:00 AM	7/28/2014	5:08:00 PM	5:14	0	6
GN160.1L	435234	5591809	7/28/2014	12:12:00 PM	7/28/2014	4:50:00 PM	4:38	0	4
GN122.7R	441437	5556975	7/30/2014	10:41:00 AM	7/30/2014	2:17:00 PM	3:36	0	2
GN124.8L	443557	5558230	7/30/2014	11:09:00 AM	7/30/2014	2:31:00 PM	3:22	0	0
GN125.3R	440859	5559858	7/30/2014	2:48:00 PM	7/30/2014	4:19:00 PM	1:31	0	2
GN130.5R	440305	5563413	7/30/2014	3:05:00 PM	7/30/2014	4:46:00 PM	1:41	0	3

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GN187.2R	432757	5617507	8/16/2014	11:45:00 AM	8/16/2014	2:58:00 PM	3:13	0	1
GN185.9L	433488	5616804	8/16/2014	12:05:00 PM	8/16/2014	3:09:00 PM	3:04	0	8
GN182.5R	434731	5613333	8/16/2014	12:57:00 PM	8/16/2014	3:27:00 PM	2:30	0	1
GN181.8R	435039	5613326	8/16/2014	1:15:00 PM	8/16/2014	3:36:00 PM	2:21	0	8
GN192.0R	430941	5621642	8/17/2014	12:04:00 PM	8/17/2014	2:38:00 PM	2:34	0	2
GN190.2R	431474	5620133	8/17/2014	12:13:00 PM	8/17/2014	2:51:00 PM	2:38	0	0
GN188.5L	432297	5618759	8/17/2014	12:22:00 PM	8/17/2014	3:03:00 PM	2:41	0	2
GN187.4R	432704	5617661	8/17/2014	12:31:00 PM	8/17/2014	3:36:00 PM	3:05	0	1
GN196.2R	429211	5625355	8/18/2014	12:10:00 PM	8/18/2014	3:17:00 PM	3:07	1	0
GN195.4R	429338	5624723	8/18/2014	12:18:00 PM	8/18/2014	4:19:00 PM	4:01	0	1
GN194.6L	429477	5623880	8/18/2014	12:28:00 PM	8/18/2014	4:40:00 PM	4:12	0	1
GN193.5R	429862	5622763	8/18/2014	12:38:00 PM	8/18/2014	4:52:00 PM	4:14	0	0
GN202.7L	425799	5630188	8/19/2014	12:08:00 PM	8/19/2014	3:01:00 PM	2:53	0	1
GN200.1R	427915	5628876	8/19/2014	12:20:00 PM	8/19/2014	3:14:00 PM	2:54	0	52
GN199.5L	428838	5628728	8/19/2014	12:33:00 PM	8/19/2014	3:50:00 PM	3:17	0	5
GN199.0L	429046	5628225	8/19/2014	12:42:00 PM	8/19/2014	4:16:00 PM	3:34	0	2
GN206.4R	423496	5633020	8/20/2014	12:21:00 PM	8/20/2014	3:38:00 PM	3:17	0	11
GN208.3L	422199	5634081	8/20/2014	12:09:00 PM	8/20/2014	3:26:00 PM	3:17	0	2
GN205.1L	424967	5632587	8/20/2014	12:32:00 PM	8/20/2014	4:08:00 PM	3:36	0	3
GN203.8R	425086	5630859	8/20/2014	12:43:00 PM	8/20/2014	4:20:00 PM	3:37	0	1
GN208.0L	422451	5633843	8/21/2014	11:48:00 AM	8/21/2014	3:23:00 PM	3:35	0	1
GN181.8R	434053	5612034	10/2/2014	10:06:00 AM	10/2/2014	1:34:00 PM	3:28	0	15
GN182.5R	434563	5613184	10/2/2014	10:31:00 AM	10/2/2014	2:46:00 PM	4:15	0	4
GN186.4R	433401	5616755	10/2/2014	11:00:00 AM	10/2/2014	1:50:00 PM	2:50	0	1
GN187.2R	432978	5617356	10/2/2014	11:15:00 AM	10/2/2014	2:05:00 PM	2:50	0	2
GN188.5L	432247	5618383	10/3/2014	10:11:00 AM	10/3/2014	2:05:00 PM	3:54	0	2
GN190.2R	431735	5619949	10/3/2014	10:26:00 AM	10/3/2014	1:46:00 PM	3:20	0	2
GN193.5R	430015	5622898	10/3/2014	10:42:00 AM	10/3/2014	1:27:00 PM	2:45	0	6
GN192R	430928	5621594	10/5/2014	11:40:00 AM	10/5/2014	2:30:00 PM	2:50	0	1

GN194.6L	429366	5623823	10/5/2014	11:53:00 AM	10/5/2014	2:45:00 PM	2:52	0	1
GN196.2R	429329	5625400	10/5/2014	12:04:00 PM	10/5/2014	3:00:00 PM	2:56	0	1
GN197.1R	429138	5626353	10/5/2014	12:15:00 PM	10/5/2014	3:15:00 PM	3:00	0	0
GN199L	428990	5628116	10/7/2014	12:26:00 PM	10/7/2014	3:36:00 PM	3:10	0	1
GN202L	426378	5629606	10/7/2014	12:41:00 PM	10/7/2014	3:19:00 PM	2:38	0	0
GN203.4R	425298	5630830	10/7/2014	12:53:00 PM	10/7/2014	3:01:00 PM	2:08	0	0
GN205.1L	424743	5632361	10/8/2014	10:18:00 AM	10/8/2014	1:35:00 PM	3:17	0	0
GN206.4R	423720	5632955	10/8/2014	10:32:00 AM	10/8/2014	1:46:00 PM	3:14	0	0
GN208L	422473	5633700	10/8/2014	10:49:00 AM	10/8/2014	2:05:00 PM	3:16	1	0
GN208.3L	422199	5633995	10/8/2014	10:59:00 AM	10/8/2014	2:44:00 PM	3:45	0	0
GN208L	422508	5633850	10/9/2014	12:47:00 PM	10/9/2014	3:50:00 PM	3:03	0	0
GN210.1L	421002	5634778	10/9/2014	1:36:00 PM	10/9/2014	4:03:00 PM	2:27	0	0
GN197.8R	429021	5626922	10/10/2014	12:00:00 PM	10/10/2014	3:00:00 PM	3:00	0	0
GN198.3L	429000	5627345	10/10/2014	12:12:00 PM	10/10/2014	2:42:00 PM	2:30	0	0
GN199.5L	428745	5628885	10/10/2014	12:28:00 PM	10/10/2014	2:20:00 PM	1:52	1	0
G01	429805	5622919	09/30/2010 13:20		09/30/2010 16:18		2.97	0	0
G02	429332	5624563	09/30/2010 13:24		09/30/2010 16:07		2.72	0	0
G03	429403	5625652	09/30/2010 13:29		09/30/2010 15:58		2.48	0	0
G04	428920	5628659	09/30/2010 13:35		09/30/2010 15:40		2.08	0	0
G05	422268	5634035	10/01/2010 08:53		10/01/2010 15:00		6.12	0	0
G06	422813	5633558	10/01/2010 08:58		10/01/2010 14:52		5.90	0	0
G07	424054	5632725	10/01/2010 09:53		10/01/2010 14:44		4.85	0	0
G08	425344	5631276	10/01/2010 10:07		10/01/2010 13:05		2.97	3	0
G09	432263	5618826	10/2/2010 10:10		10/2/2010 14:24		4.23	1	0
G10	431889	5619250	10/2/2010 10:15		10/2/2010 14:14		3.98	0	0
G11	431678	5619766	10/2/2010 10:18		10/2/2010 14:05		3.78	2	0
G12	431259	5621234	10/2/2010 10:25		10/2/2010 13:57		3.53	0	0

ONA + BC Hydro Setline Catch Data 2015.

Site	UTMs		Set Date	Set Time	Pull Date	Pull Time	Soak Time	WSG Catch Summary	Bycatch
	Easting	Northing							
49B	441697	5656365	7/12/2015	13:00	7/13/2015	11:24	22:24	0	1
97B	441416	5556934	7/12/2015	13:18	7/13/2015	11:40	22:22	0	0
185B	442272	5556020	7/12/2015	12:43	7/13/2015	10:56	22:13	0	0
169B	442250	5558845	7/13/2015	15:17	7/14/2015	12:11	20:54	0	0
33B	443287	5557690	7/13/2015	14:47	7/14/2015	11:13	20:26	0	1
177B	441307	5557244	7/13/2015	14:28	7/14/2015	11:57	21:29	0	0
81B	443663	5558451	7/13/2015	15:03	7/14/2015	11:30	20:27	0	0
17B	440822	5559881	7/14/2015	13:19	7/15/2015	10:43	21:24	0	0
1B	444114	5560775	7/14/2015	14:05	7/15/2015	10:00	19:55	0	0
113B	443733	5560029	7/14/2015	13:53	7/15/2015	10:16	20:23	0	0
129B	440799	5560075	7/14/2015	13:28	7/15/2015	10:53	21:25	0	0
161B	443749	5559867	7/14/2015	13:42	7/15/2015	10:28	20:46	0	1
48B	443548	5563570	7/15/2015	12:36	7/16/2015	10:07	21:31	0	0
112B	443786	5563062	7/15/2015	12:27	7/16/2015	10:16	21:49	0	1
200B	441071	5562083	7/15/2015	12:14	7/16/2015	10:35	22:21	0	0
160B	440926	5561355	7/15/2015	11:56	7/16/2015	10:52	22:56	0	0
96B	443656	5563415	7/16/2015	12:51	7/17/2015	10:31	21:40	0	0
64B	440316	5563366	7/16/2015	13:20	7/17/2015	10:09	20:49	0	1
152B	443418	5563998	7/16/2015	13:00	7/17/2015	10:40	21:40	0	0
31B	438832	5565524	7/17/2015	12:51	7/18/2015	9:16	20:25	0	0
71B	439006	5565258	7/17/2015	12:44	7/18/2015	9:07	20:23	0	0
15B	441511	5565316	7/17/2015	12:27	7/18/2015	8:56	20:29	0	0
195B	442211	5565238	7/17/2015	12:19	7/18/2015	8:47	20:28	0	0
144B	440289	5563465	7/17/2015	13:27	7/18/2015	10:03	20:36	0	0
123B	438390	5567446	8/12/2015	12:41	8/13/2015	10:44	22:03	0	1

43B	438330	5567715	8/12/2015	12:48	8/13/2015	10:52	22:04	0	0
127B	440734	5566077	8/12/2015	12:03	8/13/2015	11:20	23:17	0	0
167B	438498	5566497	8/12/2015	12:33	8/13/2015	10:30	21:57	0	0
79B	440823	5565841	8/12/2015	11:54	8/13/2015	11:10	23:16	0	0
183B	440816	5570380	8/13/2015	14:00	8/14/2015	11:55	21:55	0	0
27B	438201	5568134	8/13/2015	13:25	8/14/2015	11:20	21:55	0	2
139B	440913	5569173	8/13/2015	14:13	8/14/2015	11:38	21:25	0	0
175B	437739	5569273	8/13/2015	13:37	8/14/2015	11:06	21:29	0	1
59B	440948	5569825	8/13/2015	13:51	8/14/2015	11:47	21:56	0	1
11B	436670	5570683	8/14/2015	13:43	8/15/2015	10:51	21:08	0	1
91B	436844	5570354	8/14/2015	13:36	8/15/2015	11:14	21:38	0	0
155B	436321	5571176	8/14/2015	13:50	8/15/2015	11:01	21:11	0	0
107B	439861	5571594	8/14/2015	13:12	8/15/2015	10:08	20:56	0	0
191B	439642	5571752	8/14/2015	13:21	8/15/2015	10:14	20:53	0	0
119B	434904	5574044	8/17/2015	14:21	8/18/2015	10:14	19:53	0	1
99B	438455	5573573	8/17/2015	13:42	8/18/2015	11:09	21:27	0	0
187B	438219	5573919	8/17/2015	14:00	8/18/2015	10:49	20:49	0	2
23B	435232	5573239	8/17/2015	14:11	8/18/2015	10:34	20:23	0	0
51B	438437	5573168	8/17/2015	13:27	8/18/2015	11:23	21:56	0	3
7B	434822	5574096	8/18/2015	12:53	8/19/2015	10:38	21:45	0	1
75B	434219	5574713	8/18/2015	13:11	8/19/2015	10:59	21:48	0	1
135B	436968	5576560	8/18/2015	13:23	8/19/2015	10:25	21:02	0	1
67B	434443	5574469	8/18/2015	13:05	8/19/2015	10:45	21:40	0	1
87B	436927	5576817	8/18/2015	13:30	8/19/2015	10:11	20:41	0	0
2B	438137	5607660	8/26/2015	14:13	8/27/2015	16:52	26:39:00	0	0
45B	433551	5608847	8/26/2015	13:35	8/27/2015	16:41	3:06	0	0
93B	433725	5609098	8/26/2015	13:44	8/27/2015	16:21	2:37	0	1
114B	434908	5609256	8/26/2015	13:58	8/27/2015	16:16	2:18	0	0
165B	436894	5606265	8/28/2015	13:05	8/29/2015	10:09	21:04	0	0

9B	436138	5605951	8/28/2015	12:55	8/29/2015	10:00	21:05	0	0
189B	433521	5607285	8/28/2015	13:27	8/29/2015	10:33	21:06	0	0
153B	433557	5606963	8/28/2015	13:19	8/29/2015	10:25	21:06	0	0
121B	435603	5605315	8/28/2015	12:45	8/29/2015	9:45	21:00	0	0
143B	435636	5603698	8/29/2015	12:48	8/30/2015	10:59	22:11	0	0
47B	435575	5603914	8/29/2015	12:53	8/30/2015	11:10	22:17	0	0
111B	433056	5604341	8/29/2015	13:05	8/30/2015	11:21	22:16	0	0
151B	433042	5604831	8/29/2015	13:16	8/30/2015	11:32	22:16	0	0
63B	432930	5605193	8/29/2015	13:25	8/30/2015	11:40	22:15	0	0
20B	436188	5601886	8/30/2015	13:41	8/31/2015	13:29	23:48	0	0
116B	435928	5602389	8/30/2015	13:52	8/31/2015	13:38	23:46	0	0
132B	436248	5601411	8/30/2015	13:34	8/31/2015	13:04	23:30	0	0
164B	432678	5602377	8/30/2015	14:03	8/31/2015	10:39	20:36	0	0
95B	432586	5603133	8/30/2015	14:14	8/31/2015	10:52	20:38	0	0
120B	435742	5599893	9/9/2015	12:45	9/10/2015	11:44	22:59	0	0
76B	435540	5598638	9/9/2015	12:30	9/10/2015	11:20	22:50	0	2
4B	435977	5600454	9/9/2015	12:53	9/10/2015	11:53	23:00	0	0
199B	432811	5600908	9/9/2015	13:06	9/10/2015	12:10	23:04	0	1
159B	432766	5601152	9/9/2015	13:15	9/10/2015	12:21	23:06	0	0
8B	435728	5598030	9/10/2015	14:00	9/11/2015	11:11	21:11	0	0
172B	435825	5597281	9/10/2015	14:14	9/11/2015	11:00	20:46	0	0
188B	432953	5598606	9/10/2015	13:41	9/11/2015	11:36	21:55	0	0
68B	433037	5597704	9/10/2015	13:30	9/11/2015	11:11	21:41	0	1
24B	432904	5598797	9/10/2015	13:32	9/11/2015	11:45	22:13	0	0
52B	435610	5594461	9/11/2015	13:42	9/12/2015	11:47	22:05	0	0
100B	435571	5594058	9/11/2015	13:52	9/12/2015	11:36	21:44	0	0
84B	432489	5595915	9/11/2015	13:20	9/12/2015	12:20	23:00	0	1
180B	435955	5595394	9/11/2015	13:32	9/12/2015	12:00	22:28	0	0
36B	432711	5596602	9/11/2015	13:10	9/12/2015	12:30	23:20	0	0

184B	435302	5592515	9/12/2015	14:26	9/13/2015	12:45	22:19	0	0
92B	435220	5591988	9/12/2015	14:34	9/13/2015	12:56	22:22	0	0
176B	432210	5593109	9/12/2015	13:46	9/13/2015	12:25	22:39	0	0
140B	432266	5593735	9/12/2015	13:56	9/13/2015	12:14	22:18	0	0
44B	432372	5594337	9/12/2015	14:00	9/13/2015	12:04	22:04	0	0
125B	433974	5611999	9/13/2015	15:04	9/14/2015	9:38	18:34	0	0
193B	434256	5611161	9/13/2015	14:55	9/14/2015	9:25	18:30	0	0
170B	432360	5618156	9/21/2015	12:42	9/22/2015	11:22	22:40	0	0
25B	433525	5616690	9/21/2015	14:30	9/22/2015	12:03	21:33	0	0
130B	433256	5616950	9/21/2015	13:53	9/22/2015	11:54	22:01	0	0
34B	432824	5617703	9/21/2015	13:09	9/22/2015	11:35	22:26	0	0
82B	433120	5517245	9/21/2015	13:43	9/22/2015	11:45	22:02	0	0
GRTS193	422124	5637237	9/21/2015	14:35	9/22/2015	9:30	18:55	0	1
GRTS13	422335	5636949	9/21/2015	14:44	9/22/2015	9:50	19:06	0	1
GRTS105	422482	5633740	9/21/2015	15:04	9/22/2015	15:04	24	0	Unrecorded
GRTS57	425206	5631040	9/21/2015	15:19	9/22/2015	11:36	20:17	0	Unrecorded
GRTS61	425210	5630975	9/21/2015	15:25	9/22/2015	11:26	20:01	0	1
GRTS149	425455	5630400	9/21/2015	15:27	9/22/2015	11:18	19:51	0	Unrecorded
29B	434468	5613594	9/22/2015	13:52	9/23/2015	11:34	21:42	0	0
89B	434116	5614174	9/22/2015	14:00	9/23/2015	11:24	21:24	0	0
41B	433788	5614684	9/22/2015	14:06	9/23/2015	11:06	21:00	0	0
173B	433632	5614938	9/22/2015	14:24	9/23/2015	10:58	20:34	0	0
77B	433588	5615093	9/22/2015	14:13	9/23/2015	11:15	21:02	0	0
GRTS29	425923	5630211	9/22/2015	12:02	9/23/2015	10:52	22:50	0	Unrecorded
GRTS77	425997	5930002	9/22/2015	14:21	9/23/2015	11:03	20:42	0	Unrecorded
GRTS141	425826	5630280	9/22/2015	14:30	9/23/2015	10:45	20:15	0	Unrecorded
GRTS45	425413	5630324	9/22/2015	14:36	9/23/2015	10:36	20:00	0	Unrecorded
GRTS93	425318	5630324	9/22/2015	14:24	9/23/2015	10:27	20:03	0	Unrecorded
GRTS69	425295	5630417	9/22/2015	14:47	9/23/2015	10:19	19:32	0	Unrecorded

186B	431887	5619552	9/23/2015	13:30	9/24/2015	11:08	21:38	0	0
6B	431465	5620112	9/23/2015	13:38	9/24/2015	10:56	21:18	0	0
50B	431986	5619256	9/23/2015	13:23	9/24/2015	11:30	22:07	0	0
98B	432163	5618836	9/23/2015	13:15	9/24/2015	11:17	22:02	0	1
178B	432153	5618540	9/23/2015	13:07	9/24/2015	11:40	22:33	0	0
GRTS125	425610	5630080	9/23/2015	13:03	9/24/2015	10:44	21:41	0	Unrecorded
GRTS133	425235	5630355	9/23/2015	13:13	9/24/2015	10:13	21:00	0	Unrecorded
GRTS37	425199	5630452	9/23/2015	13:19	9/24/2015	10:05	20:46	0	Unrecorded
GRTS173	425103	5630532	9/23/2015	13:33	9/24/2015	9:58	20:25	0	Unrecorded
GRTS137	425269	5630599	9/23/2015	13:41	9/24/2015	10:22	20:41	0	Unrecorded
GRTS181	425178	5630992	9/23/2015	13:55	9/24/2015	9:51	19:56	0	Unrecorded
74B	431052	5621277	9/24/2015	13:38	9/25/2015	11:10	21:32	0	0
162B	430426	5622152	9/24/2015	13:47	9/25/2015	11:00	21:13	0	0
22B	431147	5620884	9/24/2015	13:21	9/25/2015	11:20	21:59	0	0
118B	431194	5620634	9/24/2015	13:02	9/25/2015	11:30	22:28	0	0
66B	431357	5620425	9/24/2015	13:57	9/25/2015	11:40	21:43	0	0
GRTS89	426650	5629234	9/24/2015	12:53	9/25/2015	10:10	21:17	0	Unrecorded
GRTS41	428344	562922	9/24/2015	13:04	9/25/2015	9:59	20:55	0	3
GRTS25	428788	5628920	9/24/2015	13:16	9/25/2015	9:50	20:34	0	1
GRTS157	429174	5628149	9/24/2015	13:27	9/25/2015	9:38	20:11	0	1
GRTS121	428838	5626935	9/24/2015	13:38	9/25/2015	9:23	19:45	0	Unrecorded
101B	429240	5624238	9/25/2015	13:05	9/26/2015	12:23	23:18	0	0
53B	429244	5624568	9/25/2015	13:10	9/26/2015	12:11	23:01	0	1
145B	429457	5623714	9/25/2015	12:55	9/26/2015	12:33	23:38	0	0
85B	429697	5623248	9/25/2015	12:50	9/26/2015	12:42	23:52	0	1
18B	430047	5622776	9/25/2015	12:40	9/26/2015	12:51	24:11:00	0	0
117B	429359	5624728	9/26/2015	13:40	9/27/2015	10:56	21:16	0	1
37B	429258	5626124	9/26/2015	14:08	9/27/2015	11:31	21:23	0	0
65B	429395	5625579	9/26/2015	14:01	9/27/2015	11:20	21:19	0	0

5B	429316	5625461	9/26/2015	13:54	9/27/2015	11:14	21:20	0	0
21B	429354	5625202	9/26/2015	13:48	9/27/2015	11:05	21:17	0	1
s092715B	433965	5613979	9/27/2015	12:34	9/28/2015	10:50	22:16	0	0
s092715A	434452	5614508	9/27/2015	12:27	9/28/2015	11:00	22:33	0	0
s092715C	434278	5613356	9/27/2015	9:27	9/28/2015	11:09	25:42:00	0	0
s092715D	434547	5613020	9/27/2015	12:46	9/28/2015	11:18	22:32	0	0
s092715E	435466	5612679	9/27/2015	12:58	9/28/2015	11:24	22:26	0	0
GRTS165	429394	5626039	9/24/2015	13:47	9/25/2015	9:16	19:29	0	Unrecorded
141B	434690	5610520	9/13/2015	15:12	9/14/2015	8:53	17:41	0	0
69B	434353	5611034	9/13/2015	14:48	9/14/2015	9:17	18:29	0	1
13B	434689	5610727	9/13/2015	14:39	9/14/2015	9:01	18:22	0	1

ONA + BC Hydro Gillnet Catch Data 2015.

Site	Easting	Northing	Set Date	Set Time	Pull Date	Pull Time	Soak Time	WSG Catch Summary	Bycatch
133GB	442271	5555964	7/12/2015	10:45	7/12/2015	13:57	3:12	0	3
53GB	441531	5556660	7/12/2015	11:28	7/12/2015	14:27	2:59	0	0
5GB	443594	5558313	7/13/2015	12:25	7/13/2015	16:19	3:54	0	4
37GB	443364	5558162	7/13/2015	12:04	7/13/2015	16:07	4:03	0	4
145GB	442276	5557132	7/13/2015	10:22	7/13/2015	15:38	5:16	0	1
85GB	441234	5557721	7/13/2015	10:42	7/13/2015	13:53	3:11	0	2
73GB	442275	5556376	7/13/2015	11:15	7/13/2015	14:16	3:01	0	0
97GB	441065	5559155	7/14/2015	10:25	7/14/2015	15:07	4:42	0	2
185GB	441063	5558730	7/14/2015	10:16	7/14/2015	15:23	5:07	0	2
65GB	443664	5559679	7/14/2015	10:40	7/14/2015	14:31	3:51	0	2
21GB	442363	5560467	7/14/2015	10:51	7/14/2015	14:50	3:59	0	2
113GB	441111	5561903	7/15/2015	9:20	7/15/2015	13:20	4:00	0	1

161GB	444346	5561435	7/15/2015	9:36	7/15/2015	13:39	4:03	0	4
117GB	440874	5560778	7/15/2015	8:48	7/15/2015	12:54	4:06	0	2
1GB	444126	5561795	7/15/2015	9:12	7/15/2015	13:07	3:55	0	1
17GB	443762	5562633	7/15/2015	9:45	7/15/2015	13:50	4:05	0	3
169GB	440515	5563283	7/16/2015	8:58	7/16/2015	14:20	5:22	0	0
177GB	442856	5565119	7/16/2015	9:08	7/16/2015	14:45	5:37	0	2
81GB	441211	5565650	7/16/2015	9:26	7/16/2015	15:36	6:10	0	4
49GB	442604	5565284	7/16/2015	9:16	7/16/2015	15:16	6:00	0	2
33GB	440702	5563150	7/16/2015	8:51	7/16/2015	14:13	5:22	0	1
129GB	441061	5562563	7/16/2015	8:41	7/16/2015	13:46	5:05	0	4
127GB	438471	5566551	7/17/2015	9:30	7/17/2015	15:18	5:48	0	3
71GB	438509	5566987	7/17/2015	9:38	7/17/2015	13:31	3:53	0	0
107GB	438703	5565799	7/17/2015	9:20	7/17/2015	13:04	3:44	0	5
183GB	440875	5565961	7/17/2015	9:05	7/17/2015	13:45	4:40	0	1
59GB	441114	5565592	7/17/2015	9:00	7/17/2015	13:57	4:57	0	0
195GB	441176	556533	7/17/2015	8:54	7/17/2015	14:00	5:06	0	7
127GB-2	438469	5566945	8/12/2015	9:41	8/12/2015	13:44	4:03	0	4
15GB	4409963	5569156	8/12/2015	10:24	8/12/2015	14:44	4:20	0	3
31GB	438406	5567323	8/12/2015	9:50	8/12/2015	13:56	4:06	0	1
143GB	441014	5568628	8/12/2015	10:09	8/12/2015	14:20	4:11	0	3
79GB	440995	5568992	8/12/2015	10:16	8/12/2015	14:33	4:17	0	2
95GB	440813	5570272	8/13/2015	9:21	8/13/2015	14:37	5:16	0	4
151GB	440924	5570135	8/13/2015	9:12	8/13/2015	14:23	5:11	0	1
159GB	436692	5570694	8/13/2015	10:02	8/13/2015	15:20	5:18	0	4
47GB	437306	5569993	8/13/2015	9:52	8/13/2015	15:07	5:15	0	1
63GB	437449	5569745	8/13/2015	9:40	8/13/2015	14:56	5:16	0	1
11GB	435923	5572095	8/14/2015	10:32	8/14/2015	14:05	3:33	0	0
191GB	438629	5572996	8/14/2015	10:11	8/14/2015	14:15	4:04	0	3
199GB	438866	5572405	8/14/2015	10:03	8/14/2015	14:46	4:43	0	5

111GB	439524	5571962	8/14/2015	9:54	8/14/2015	14:33	4:39	0	3
123GB	435725	5572252	8/14/2015	10:39	8/14/2015	14:13	3:34	0	0
103GB	437898	5574717	8/17/2015	10:59	8/17/2015	15:07	4:08	0	1
55GB	435708	5573931	8/17/2015	10:35	8/17/2015	14:30	3:55	0	0
135GB	437587	5575601	8/17/2015	11:10	8/17/2015	15:24	4:14	0	2
147GB	435222	5573642	8/17/2015	10:19	8/17/2015	14:43	4:24	0	5
155GB	435288	5573300	8/17/2015	10:27	8/17/2015	14:50	4:23	0	0
87GB	437072	5576350	8/18/2015	9:18	8/18/2015	13:44	4:26	0	2
75GB	437204	5576186	8/18/2015	9:11	8/18/2015	13:56	4:45	0	4
139GB	434035	5576551	8/18/2015	9:47	8/18/2015	14:10	4:23	0	2
39GB	436757	5576821	8/18/2015	9:30	8/18/2015	13:40	4:10	0	2
27GB	434058	5576726	8/18/2015	9:55	8/18/2015	14:26	4:31	0	2
51GB	436270	5578654	8/19/2015	9:58	8/19/2015	14:00	4:02	0	2
99GB	436300	5578569	8/19/2015	9:50	8/19/2015	13:50	4:00	0	4
7GB	434074	5578132	8/19/2015	9:40	8/19/2015	13:32	3:52	0	1
187GB	433702	5577634	8/19/2015	9:22	8/19/2015	13:02	3:40	0	2
167GB	433949	5577316	8/19/2015	9:32	8/19/2015	13:22	3:50	0	3
165GB	434947	5609488	8/26/2015	12:23	8/26/2015	15:57	3:34	0	2
153GB	437336	5606480	8/26/2015	11:41	8/26/2015	15:20	3:39	0	3
101GB	437248	5606479	8/26/2015	11:36	8/26/2015	15:07	3:31	0	1
137GB	433573	5608980	8/26/2015	12:03	8/26/2015	15:48	3:45	0	3
173GB	437497	5606650	8/26/2015	11:49	8/26/2015	15:30	3:41	0	5
61GB	437228	5606531	8/28/2015	11:06	8/28/2015	15:21	4:15	0	0
109GB	432957	5605548	8/28/2015	10:30	8/28/2015	14:41	4:11	0	5
157GB	432944	5605137	8/28/2015	10:22	8/28/2015	14:28	4:06	0	4
197GB	433345	5606413	8/28/2015	10:37	8/28/2015	14:57	4:20	0	1
149GB	436946	5606306	8/28/2015	10:56	8/28/2015	15:15	4:19	0	1
116GB	435385	5604800	8/29/2015	11:42	8/29/2015	15:00	3:18	0	1
164GB	432842	5603905	8/29/2015	11:18	8/29/2015	13:44	2:26	0	4

132GB	432614	5603576	8/29/2015	11:13	8/29/2015	13:35	2:22	0	9
20GB	435426	5604653	8/29/2015	11:38	8/29/2015	15:12	3:34	0	0
4GB	435447	5604484	8/29/2015	11:31	8/29/2015	15:17	3:46	0	0
36GB	435624	5603021	8/30/2015	10:39	8/30/2015	15:03	4:24	0	9
84GB	432661	5801695	8/30/2015	10:27	8/30/2015	14:52	4:25	0	0
52GB	432711	5601035	8/30/2015	10:02	8/30/2015	14:22	4:20	0	5
180GB	432763	5601283	8/30/2015	10:20	8/30/2015	14:32	4:12	0	10
172GB	435650	5603184	8/30/2015	10:44	8/30/2015	15:18	4:34	0	4
25GB	434967	5609528	9/1/2015	10:09	9/1/2015	14:01	3:52	0	3
121GB	434926	5609701	9/1/2015	10:16	9/1/2015	14:11	3:55	0	4
189GB	434843	5609777	9/1/2015	10:24	9/1/2015	14:24	4:00	0	2
9GB	434805	5609954	9/1/2015	10:30	9/1/2015	14:36	4:06	1	6
89GB	434807	5610104	9/1/2015	10:35	9/1/2015	15:12	4:37	0	0
41GB	434589	5610908	9/1/2015	10:41	9/1/2015	15:21	4:40	0	2
68GB	435657	5599205	9/9/2015	11:03	9/9/2015	14:22	3:19	0	1
100GB	432783	5599712	9/9/2015	10:51	9/9/2015	14:07	3:16	0	3
188GB	432917	5600688	9/9/2015	10:30	9/9/2015	13:30	3:00	0	9
8GB	432903	5600126	9/9/2015	10:42	9/9/2015	13:50	3:08	0	10
120GB	435599	5598910	9/9/2015	11:10	9/9/2015	14:32	3:22	0	2
76GB	435792	5597445	9/10/2015	10:53	9/10/2015	14:44	3:51	0	4
40GB	435768	5597758	9/10/2015	10:45	9/10/2015	14:54	4:09	0	3
136GB	432902	5597864	9/10/2015	10:31	9/10/2015	15:15	4:44	0	1
24GB	432898	5598297	9/10/2015	10:20	9/10/2015	15:25	5:05	0	6
192GB	435945	5596771	9/10/2015	11:02	9/10/2015	14:19	3:17	0	21
88GB	435610	5594209	9/11/2015	10:38	9/11/2015	13:56	3:18	0	7
104GB	432563	5596119	9/11/2015	10:05	9/11/2015	14:40	4:35	0	8
156GB	432623	5596373	9/11/2015	9:57	9/11/2015	15:00	5:03	0	15
56GB	432524	5595645	9/11/2015	10:13	9/11/2015	14:30	4:17	0	2
148GB	435695	5594767	9/11/2015	10:24	9/11/2015	14:15	3:51	0	2

92GB	432261	5593834	9/12/2015	10:51	9/12/2015	15:30	4:39	0	2
44GB	432424	5594114	9/12/2015	10:43	9/12/2015	15:34	4:51	0	1
196GB	435282	5592593	9/12/2015	11:10	9/12/2015	15:01	3:51	0	5
184GB	435182	5592811	9/12/2015	11:03	9/12/2015	15:17	4:14	0	2
60GB	435192	5592107	9/12/2015	11:19	9/12/2015	14:44	3:25	0	2
77GB	434214	5611279	9/13/2015	10:30	9/13/2015	13:20	2:50	0	8
57GB	434551	5613413	9/13/2015	11:06	9/13/2015	16:20	5:14	0	4
93GB	434530	5612594	9/13/2015	10:50	9/13/2015	15:44	4:54	0	24
141GB	434103	5611873	9/13/2015	10:40	9/13/2015	15:32	4:52	0	3
29GB	433910	5614409	9/20/2015	10:25	9/20/2015	15:19	4:54	0	3
69GB	433061	5615566	9/20/2015	11:00	9/20/2015	16:06	5:06	0	8
13GB	433238	5615113	9/20/2015	10:50	9/20/2015	15:53	5:03	0	2
193GB	433453	5614976	9/20/2015	10:40	9/20/2015	15:41	5:01	0	0
125GB	433680	5614676	9/20/2015	10:34	9/20/2015	15:30	4:56	0	3
38GB	432687	5617899	9/21/2015	11:31	9/21/2015	13:22	1:51	0	0
86GB	432825	5617581	9/21/2015	11:24	9/21/2015	15:35	4:11	0	0
22GB	432528	5618107	9/21/2015	11:40	9/21/2015	13:00	1:20	0	0
146GB	433865	5616422	9/21/2015	11:06	9/21/2015	14:53	3:47	0	0
54GB	433446	5616932	9/21/2015	11:16	9/21/2015	14:20	3:04	0	0
GRTS137	421573	5637758	9/21/2015	12:41	9/21/2015	16:25	3:44	0	unk
GRTS165	422077	5637645	9/21/2015	12:48	9/21/2015	16:45	3:57	0	unk
GRTS25	422266	5637396	9/21/2015	12:53	9/21/2015	16:30	3:37	0	unk
GRTS125	422386	5637177	9/21/2015	13:00	9/21/2015	16:17	3:17	0	unk
GRTS89	422102	5636169	9/21/2015	13:09	9/21/2015	15:47	2:38	0	unk
50GB	431628	5619696	9/22/2015	10:35	9/22/2015	14:53	4:18	0	0
186GB	431624	5620091	9/22/2015	10:43	9/22/2015	15:02	4:19	0	0
134GB	432248	5618615	9/22/2015	10:25	9/22/2015	14:44	4:19	0	0
74GB	432426	5618611	9/22/2015	10:18	9/22/2015	14:30	4:12	0	0
98GB	431771	5620013	9/22/2015	10:58	9/22/2015	15:10	4:12	0	0

GRTS181	425253	5630697	9/22/2015	10:36	9/22/2015	15:11	4:35	0	unk
GRTS41	425372	5630430	9/22/2015	10:41	9/22/2015	15:21	4:40	0	unk
GRTS173	425632	5630141	9/22/2015	10:51	9/22/2015	15:28	4:37	0	unk
GRTS57	424698	5630317	9/22/2015	11:57	9/22/2015	14:54	2:57	0	unk
GRTS105	425076	5630453	9/22/2015	12:02	9/22/2015	15:00	2:58	0	unk
10GB	430498	5622119	9/23/2015	10:35	9/23/2015	14:34	3:59	0	0
122GB	430830	5621756	9/23/2015	10:30	9/23/2015	14:19	3:49	0	1
6GB	430999	5621430	9/23/2015	10:22	9/23/2015	14:05	3:43	0	1
118GB	431228	5620821	9/23/2015	10:14	9/23/2015	13:54	3:40	0	0
66GB	431245	5620587	9/23/2015	10:07	9/23/2015	13:45	3:38	0	0
GRTS193	426178	5629598	9/23/2015	9:48	9/23/2015	14:30	4:42	0	unk
GRTS13	425666	5630334	9/23/2015	10:04	9/23/2015	14:08	4:04	0	unk
GRTS34	425324	5630240	9/23/2015	10:08	9/23/2015	14:02	3:54	0	unk
GRTS130	425055	5631036	9/23/2015	10:15	9/23/2015	13:54	3:39	0	unk
110GB	428993	5627739	9/24/2015	11:41	9/24/2015	14:52	3:11	0	0
178GB	429450	5623539	9/24/2015	10:30	9/24/2015	15:04	4:34	0	1
102GB	429795	5623129	9/24/2015	10:22	9/24/2015	14:54	4:32	0	2
190GB	430256	5622513	9/24/2015	10:13	9/24/2015	14:30	4:17	0	0
154GB	430533	5622253	9/24/2015	10:07	9/24/2015	14:12	4:05	0	0
82GB	429360	5623774	9/24/2015	10:36	9/24/2015	15:15	4:39	0	0
GRTS170	429273	5625602	9/24/2015	9:20	9/24/2015	14:08	4:48	0	unk
GRTS18	429309	5625716	9/24/2015	9:30	9/24/2015	13:53	4:23	0	unk
GRTS2	428982	5628333	9/24/2015	9:39	9/24/2015	14:30	4:51	0	unk
GRTS197	428126	5629259	9/24/2015	9:45	9/24/2015	11:49	2:04	0	unk
114GB	429355	5626019	9/25/2015	10:45	9/25/2015	14:05	3:20	0	0
130GB	429387	5624467	9/25/2015	10:15	9/25/2015	13:15	3:00	0	0
18GB	429254	5625167	9/25/2015	10:20	9/25/2015	13:25	3:05	0	0
170GB	429362	5625251	9/25/2015	10:25	9/25/2015	13:35	3:10	0	0
34GB	429400	5625741	9/25/2015	10:40	9/25/2015	13:45	3:05	0	0

162GB	429244	5624568	9/26/2015	11:25	9/26/2015	14:30	3:05	0	0
2GB	429068	5626266	9/26/2015	11:14	9/26/2015	14:22	3:08	0	3
158GB	428973	5627170	9/26/2015	11:35	9/26/2015	14:42	3:07	0	2
62GB	428588	5628265	9/26/2015	11:50	9/26/2015	15:01	3:11	0	0
092715D	435365	5615603	9/27/2015	10:00	9/27/2015	14:06	4:06	0	37
092715C	434981	5615733	9/27/2015	9:57	9/27/2015	13:47	3:50	0	12
092715B	434451	5615867	9/27/2015	9:52	9/27/2015	13:24	3:32	0	0
092715A	434033	5615321	9/27/2015	9:46	9/27/2015	13:22	3:36	0	23
092715E	435615	5615457	9/27/2015	10:07	9/27/2015	14:30	4:23	0	30
280915E	434294	5611369	9/28/2015	10:37	9/28/2015	15:00	4:23	0	13
280915A	435042	5610172	9/28/2015	10:10	9/28/2015	14:30	4:20	0	2
280915B	434658	5610453	9/28/2015	10:18	9/28/2015	14:40	4:22	0	7
280915C	434561	5610751	9/28/2015	10:23	9/28/2015	14:50	4:27	0	0
280915D	434284	5610995	9/28/2015	10:30	9/28/2015	unk	unk	0	6
45GB	434661	5613107	9/13/2015	11:00	9/13/2015	16:12	5:12	0	1