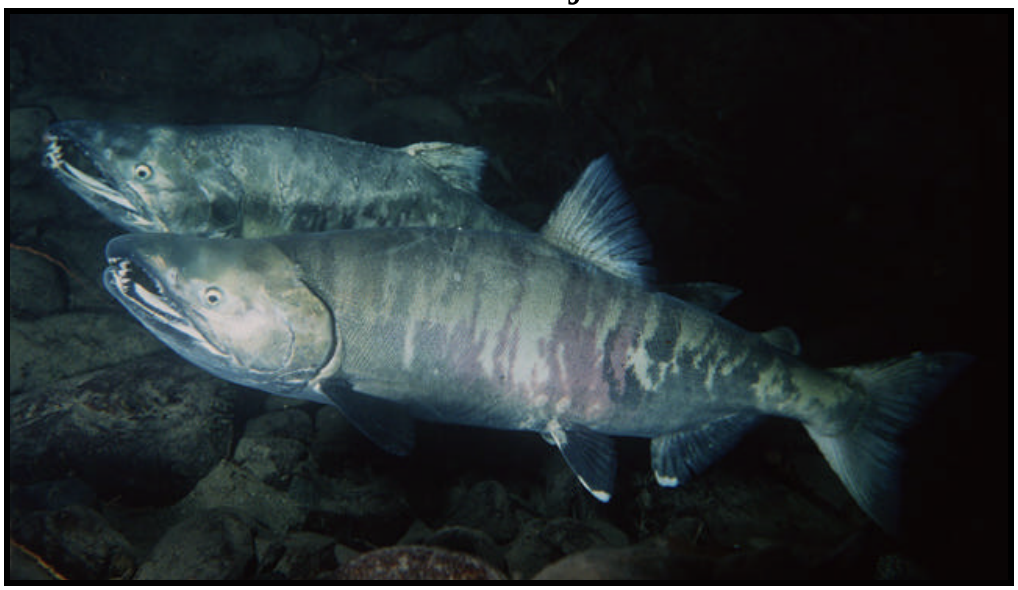
Chum Tagging/Test Fishery

Yukon River Panel Project CRE-27N-03



Final Report

Prepared on behalf of the North Yukon Renewable Resources Council (RRC) and the Vuntut Gwitchin First Nation

by

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November, 2003

ABSTRACT:

A fish-wheel was constructed and tested as a possible capture method for tagging chum salmon. The fish wheel was used in the first two weeks of tagging, however, it proved to be an ineffective method for capturing chum due to water clarity. Capture and tagging was continued using gillnets, achieving a total of 297 chum tagged. A test fishery was also undertaken upstream to recapture tagged fish. A total of 319 chum were captured in the test fishery, with 5 tags recovered. The project can be considered a partial success, primarily developing community capacity and experience that will ensure the success of future mark/recapture efforts.

OBJECTIVES:

a. Inspire and build community capacity and stewardship for the conservation, restoration, and enhancement of salmon stocks and their habitat in the Porcupine River sub-basin: in order to carry out needed research and to ensure long-term salmon habitat stewardship, the human capacity must be developed within the community of Old Crow. This is consistent with goals and objectives of the Vuntut Gwitchin Final Agreement and that of VGFN. This project will provide valuable experience in this regard to community members;
b. Restore chum salmon stocks by directly increasing spawning escapement: effective “in-season” management of the chum fishery in Old Crow will result in more fish reaching the spawning grounds during years of low returns;
c. Provide managers with "in-season" information regarding the abundance and timing of chum runs in the Porcupine River: such information will provide information needed to conduct effective “in-season” management of the chum fishery;
d. Provide information on the proportion of Porcupine River chum stocks that spawn in the Fishing Branch River: a mark-recapture component will provide information on whether or not a proportion of the chum run is spawning at a location other than the Fishing Branch River;
e. Set the stage to ensure the long-term conservation of the chum salmon resource and its' habitat in the Porcupine River sub-basin: both the knowledge acquired and experience gained by community members through this project will provide a basis from which local managers will pursue the conservation and restoration of this valued food resource.

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1 INTRODUCTION:

The Porcupine River is one of the largest tributaries in the Yukon River system. It extends from its mouth at Fort Yukon, Alaska, across the Canada/U.S. border where it drains a large portion of the north Yukon and most of the Vuntut Gwitchin First Nation's Traditional Territory. The Porcupine has a number of large tributaries in Canada, including three significant rivers that form its headwaters: the Whitestone, Miner, and Fishing Branch Rivers. The only settlement within the Porcupine River watershed is the village of Old Crow, located approximately 80 kilometres east of the Canada/U.S. border at the mouth of the Crow River. Old Crow has a population of roughly three hundred, mainly Vuntut Gwitchin First Nation members.

Three species of salmon migrate up the Porcupine River. These include a chinook run that passes Old Crow mainly during the month of July, a chum run that passes Old Crow mainly in September, and a coho run that passes Old Crow between early October and late January. There have also been reports of summer chum in the vicinity of Old Crow. The Vuntut Gwitchin also depend on the chum for a substantial subsistence fishery.

A lack of stock assessment information has been identified as a barrier to the successful local management of Porcupine River chum salmon stocks. The only estimate of run-size is an escapement count from the enumeration weir on the Fishing Branch River, the major spawning destination for Porcupine River chum. Therefore, there is no "in-season" estimate available before or during the Old Crow subsistence fishery. With declining stocks in recent years, such an estimate has become necessary to enable effective local management of the Old Crow fishery. Establishing a program to assess run strength as chum stocks reach Old Crow has been identified as a priority by local managers.

In 2002, a limited chum salmon mark-recapture effort was undertaken on the Porcupine River. For a variety of reasons, this preliminary effort was not successful in tagging a suitable number of chum (Sheepway, 2002).

A primary objective of this project was to tag and recapture a sufficient number of chum salmon in order to calculate an estimate of run strength "in-season" and begin the process of developing a seasonal profile of chum returns. A further objective was to construct a fish-wheel and test its effectiveness for capturing chum salmon in the Porcupine River. These efforts met with some setbacks and successes.

2 METHODS

2.1 Fish Wheel Construction

Given of the lack of experience regarding the construction and use of fish wheels in Old Crow, the project coordinator travelled to Dawson City, in May 2003, where observations

and measurements of a fish wheel were made. Video footage of the fish wheel was also taken for reference. The fish wheel observed was constructed in 2002 as part of a mark-recapture assessment (CRE-09-02) undertaken near Dawson City (Jones & Besharah, 2002). Information on various styles and designs of fish wheels was also obtained.

For reasons of simplicity and cost, it was decided to duplicate (with minor modifications) the design of the wheel observed in Dawson. Construction began in mid-June. The fish wheel was approximately half complete by the end of June, at which time it was halted so that crewmembers could undertake fieldwork for other projects. Construction was resumed in mid-August and the fish wheel was complete by August 26th. On August 28th, it was towed downriver to the mouth of Caribou Bar Creek. On August 29th, it was positioned in the river and set.

2.2 Tagging/Test Fishery

Initial efforts at capturing chum with the fish wheel met with moderate success. However, water levels, and correspondingly, turbidity levels dropped dramatically over the course of 13 days. With relatively clear water, the fish wheel no longer captured fish.

Capture efforts were then shifted to the use of gillnets, also in the vicinity of Caribou Bar Creek. The nets used were 50 and 100 feet in length, six feet deep, with 4-inch mesh. They were placed in fixed locations and checked every 30 to 60 minutes throughout the day. Due to various delays, successful capture was not resumed until September 19th and was then continued until September 27th. On September 28th, ice conditions in the river prevented nets from being set and the crew returned to Old Crow.

Captured chum were fitted with orange, numbered (beginning with #30), Department of Fisheries and Oceans (DFO) "spaghetti" tags, tied through the skin of each fish just below the rear of the dorsal fin.

Recapture efforts were undertaken in a test fishery with gillnets set near Old Crow. This effort began on September 4th. It was continued as needed until September 28th, generally with a one to two day delay behind successful capture/tagging efforts. The test fishery was not undertaken during delays and "down-time" when downstream capture/tagging was not successful.

All sampling for this project was carried out under fish collection license CL03-44, issued by the Department of Fisheries and Oceans (DFO) in August, 2003.

As chum salmon tagged in this project passed through the Fishing Branch weir, they were noted, and where possible, tags were recovered.

3 RESULTS/DISCUSSION

3.1 Fish Wheel as Capture Method

Maintenance of the fish wheel required considerable time, specifically repairing baskets broken under the strain of the current. It was subsequently learned that the wheel did not need to turn as rapidly as previously understood, and therefore had been positioned in water that was too swift causing excessive strain on the baskets. Also, with water levels dropping daily, constant re-positioning of the wheel required considerable effort. The crew was working constantly throughout each day and evening.

Use of the fish wheel created setbacks for the mark/recapture effort. Despite the early arrival of chum salmon in August, the start of the mark/recapture program could not be initiated early due to the need to complete construction of the fish wheel. As a result, the early portions of the run could not be assessed in the mark/recapture effort.

Initially, the fish wheel captured chum salmon at a promising rate, with over 100 chum successfully tagged in the first week. On September 8th, the crew ceased operation and returned to Old Crow for time off. At this point there was an additional delay in shipping parts/materials for the fish wheel to Old Crow from Whitehorse. When the crew returned to the fish wheel on September 11th, water levels had dropped dramatically, requiring extensive work to re-position and secure the fish wheel. The wheel was not back in the water until September 12th. Only two chum salmon were caught in the wheel during that night, followed by none on subsequent nights.

It was decided on September 14th (week three) to switch to gillnets as method of capture. A further delay ensued as gillnets were shipped to Old Crow from Whitehorse. Successful recapture using gillnets did not resume until September 19th.

As water levels dropped dramatically, so did observed turbidity. This resulted in relatively clear water conditions compared to when the tagging effort began. It should be noted that water levels were unusually high at the end of August and they subsequently dropped a total of more than three metres during the course of this project.

3.2 Chum Mark/Recapture Program

Tags recovered in the test fishery indicated a two to four day delay between the tagging location at Caribou Bar Creek and at the site of recovery near Old Crow. The weekly summary of tagging/test fishery data in the following sub-sections has been arranged accordingly. See tables in sections 7.4 & 7.5 for detailed results.

3.2.1 Week One

Capture/Tagging (Aug. 30th-Sept. 5th): All capture during the first week of operation was conducted using the fish wheel. Successful tagging was conducted during five days of this time.

# Chum tagged	# Males	# Females	Average length-male	Average length-female
103	34 (33%)	69 (67%)	69.0 cm	62.3 cm

Other Species Captured/Mortality:

- 1 inconnu (mortality)
- 2 pike (1 mortality)
- 1 least cisco
- 2 whitefish (2 mortalities)
- 1 chum (mortality)

Recapture/Test Fishery (Sept. 1-7th): The test fishery/recapture effort was begun on September 4th, and conducted successfully during four days of this period.

# chum caught	# Males	# Females	Average length-male	Average length-female	# Tagged chum caught
64	58 (91%)	6 (9%)	69.8 cm	65.5 cm	0*

*Two chum were caught with USF&WS (Alaska) Tags

Initial success of the fish wheel as a capture method did not result in a successful assessment of run strength during the first week of the program. Although the test fishery was in operation for 4 days in the corresponding recapture period, no tagged fish were caught. The test fishery data indicates that the fish wheel and the gillnets used in the test fishery were each acting selectively for different components of the chum migration. That is, 67% of chum tagged with the fish wheel during the first week were female, while only 9% of chum caught in the test fishery were female. This, combined with the fact that the test fishery caught 38% less fish than were tagged with the fish wheel, resulted in a very low probability of tags being recaptured.

3.2.2 Week Two

Capture/Tagging (Sept. 6-12th): All capture during the second week of operation was conducted using the fish wheel. Successful tagging was conducted during two days of this period. Delays and declining fish wheel success affected the tagging effort during this period.

# Chum tagged	# Males	# Females	Average length-male	Average length-female
32	15 (47%)	17 (53%)	66.6 cm	62.4 cm

Other Species Captured/Mortality:

- 1 inconnu (mortality)

Recapture/Test Fishery (Sept. 8-14th): The test fishery/recapture effort was conducted successfully during two days of this period.

# chum caught	# Males	# Females	Average length-male	Average length-female	# Tagged chum caught
43	33 (77%)	10 (23%)	69.1 cm	63.0 cm	0

The second week of the program was unsuccessful due to a lack of capture/tagging with the fish wheel failure and subsequent delays.

3.2.3 Week Three

Capture/Tagging (Sept. 13-19th): Two chum tagged during the third week of operation were captured using the fish wheel. Twenty-four other chum were tagged using a gillnet. Tagging was conducted successfully during two days of this period. Delays and a lack of fish wheel success affected the tagging effort during this period.

# Chum tagged	# Males	# Females	Average length-male	Average length-female
24	15 (63%)	9 (37%)	67.6 cm	59.7 cm

Recapture/Test Fishery (Sept. 15-21st): The test fishery/recapture effort was conducted successfully during one day of this period.

# chum caught	# Males	# Females	Average length-male	Average length-female	# Tagged chum caught
8	8 (100%)	0	70.8 cm	--	0

The third week of the program was unsuccessful due to a lack of capture/tagging with the fish wheel failure and subsequent delays.

3.2.4 Week Four

Capture/Tagging (Sept. 20-26th): All capture during the fourth week of operation was conducted using gillnets. Tagging was conducted successfully during seven days of this period.

# Chum tagged	# Males	# Females	Average length-male	Average length-female
114	69 (61%)	45 (39%)	67.6 cm	61.7 cm

Other Species Captured/Mortality:

- 1 pike
- 1 coho
- 1 chum (mortality)

Recapture/Test Fishery (Sept. 22-28th): The test fishery/recapture effort was conducted successfully during seven days of this period.

# chum caught	# Males	# Females	Average length-male	Average length-female	# Tagged chum caught
204	153 (75%)	51 (25%)	70.9 cm	63.8 cm	5*

* Four additional chum were caught with an USF&WS (Alaska) Tags

Mark/Recapture Estimate for Week Four:
Formula: # chum tagged x # chum recaptured / # tagged chum recovered = total fish
A significant number of fish were tagged and recaptured during week four and five tags were recovered in the test fishery. Results indicate that approximately 4,651 chum salmon passed Old

Crow during the period of Sept. 22-28th. However, due to the sample size, the margin of error for this number should be considered to be high.

3.2.5 Week Five

Capture/Tagging (Sept. 27th-Oct. 3rd): All capture during the fifth week of operation was conducted using gillnets. Tagging was conducted successfully during one day of this period. Due to ice conditions, capture/tagging efforts were halted on September 28th.

# Chum tagged	# Males	# Females	Average length-male	Average length-female
24	17 (71%)	7 (29%)	66.9 cm	62.7 cm

Other Species Captured/Mortality:

- 1 whitefish (mortality)
- 1 coho
- 1 chum (mortality)

Recapture/Test Fishery (Sept. 29th-Oct. 5th): Due to ice conditions, the test fishery/recapture effort was not attempted during this time.

The fifth week of the program was unsuccessful due to ice flow conditions on the Porcupine River. Only one day of capture/tagging took place, and the test fishery was also halted before the corresponding week.

3.3 Tags Recovered at Fishing Branch Weir

A total of 261 (88%) of the 297 chum tagged in this project were observed passing through the Fishing Branch weir. Ninety-four (32%) of these tags were recovered at the weir. The tag numbers recovered ranged from the third tag applied (#32) to the third-last tag applied (#315) (DFO, 2003). See tables in section 7.3 for all tag numbers recovered at the Fishing Branch weir.

3.4 Travel Time of Tagged Chum Salmon

All chum were captured and tagged near the mouth of Caribou Bar Creek. The 5 tags recovered in the test fishery travelled approximately 53 Km in an average of 3 days (18.6 km/day). The 94 recovered at the Fishing Branch Weir travelled a distance of approximately 425 Km in an average of 16.6 days (25.6 km/day). See tables in sections 7.2 & 7.3 for travel times of individual tagged chum salmon.

4 CONCLUSIONS/RECOMMENDATIONS

This project provided a base of experience from which a longer-term mark/recapture program can be undertaken. While the results did not provide an overall in-season assessment of chum salmon returns to the Porcupine River, they did provide an estimate of run strength during week four of the season. It also provided valuable information on migratory patterns of Porcupine stocks. In addition, the project built valuable experience from which successful

future mark/recapture efforts can be undertaken. In general CRE-27N-03 can be considered a partial success.

4.1 Construction/Use of Fish Wheel

The construction and use of the fish wheel was a valuable learning experience for all involved. The wheel was constructed successfully, however, it did require more time, money, and personnel than originally anticipated.

Utilizing the fish wheel to capture chum salmon in the Porcupine River proved ineffective during clear water conditions. Although initial results showed some success in high water conditions, as water and associated turbidity levels dropped, fish wheel catches diminished to zero. In clear water conditions the fish wheel baskets are visible and therefore fish can avoid them. Given this, the fact that fish wheels are not used in the Old Crow fishery is not surprising.

It should be noted that mortalities in the fish wheel were believed to be the result of water pressure in the live holding tank, a design feature that was corrected after the first week of operation. Most mortalities were species other than salmon, which likely did not have enough strength to withstand such constant water pressure in a confined space.

4.2 Mark/Recapture Program

Success of the mark/recapture program was primarily hampered by delays and other setbacks resulting from the use of the fish wheel. A total of 297 chum were tagged over the course of four weeks. This is less than 30% of the original rough target of 1,100. With the test fishery operated on a corresponding basis, 319 chum were caught in the test fishery. With no usable results during the first three weeks of operation, the fourth week of the program was the most successful for providing mark/recapture estimate. A significant number of fish were tagged (114) and recaptured (204), and, five tags were recovered in the test fishery effort. These results indicate that approximately 4,651 chum salmon passed Old Crow during that week. However, the sample size also leaves this estimation with a high margin of error.

The initial success of the fish wheel during high water conditions actually hampered the rest of the project. Had the fish wheel failed as a sufficient capture method immediately, less active capture/tagging time would have been lost. However, the initial success prompted the continued use of time and resources to make the wheel work as its catches declined. Had gillnets been obtained immediately, all efforts could have been focussed on maximizing the capture in this regard.

4.3 Spawning Destination of Chum Salmon Stocks

The results of this project indicate that the vast majority of Porcupine River chum salmon return to spawn in the Fishing Branch River. The tags observed at the Fishing Branch enumeration weir and the tags recovered in the test fishery comprise almost 90% of all tags

applied. Therefore, 10% of the tagged salmon remain unaccounted for. The last tag recovered or observed at the weir was on October 16th and the weir effectively ceased operation on October 18th. No further tags were observed on October 17th or 18th and the last tag number recovered was #315, with #318 being the highest applied. Considering these facts, and that October 18th is past the average travel time ; therefore, these results indicate that while it is possible that some tags may have arrived after the weir ceased operation, such late arrivals would not be significant in number. Other possible fates of the unaccounted for 10% of tags are: that some tagged chum died before reaching the enumeration weir, and/or, that some migrated to other tributaries of the Porcupine River. Traditional Knowledge documented in 2002 (CRE-16-02) indicated that chum salmon were historically observed in the Bell and Whitestone Rivers (Anderton, 2002). As well, some accounts of Old Crow fishers catching chum salmon in the Crow River do exist, including reports from 2003.

4.4 Recommendations

It is recommended that the experience gained through this project be used as the basis from which to develop a successful long-term chum salmon mark/recapture program. It is recommended that the capture/tagging effort utilize gillnets, with the primary focus being to maximize catch results in this regard. With nets located in an effective location, targets for tagging a significant number of chum will be met or exceeded. If other methods of capture are attempted or experimented with, they should be done with additional resources beyond those required to maintain the primary capture effort using gillnets. In this way the primary objective of a successful mark/recapture program can be met.

A further recommendation is that results of the mark/recapture program be posted publicly in Old Crow on a weekly basis. This will assist in the overall management of the resource, including community support for other R&E projects.

5 REFERENCES

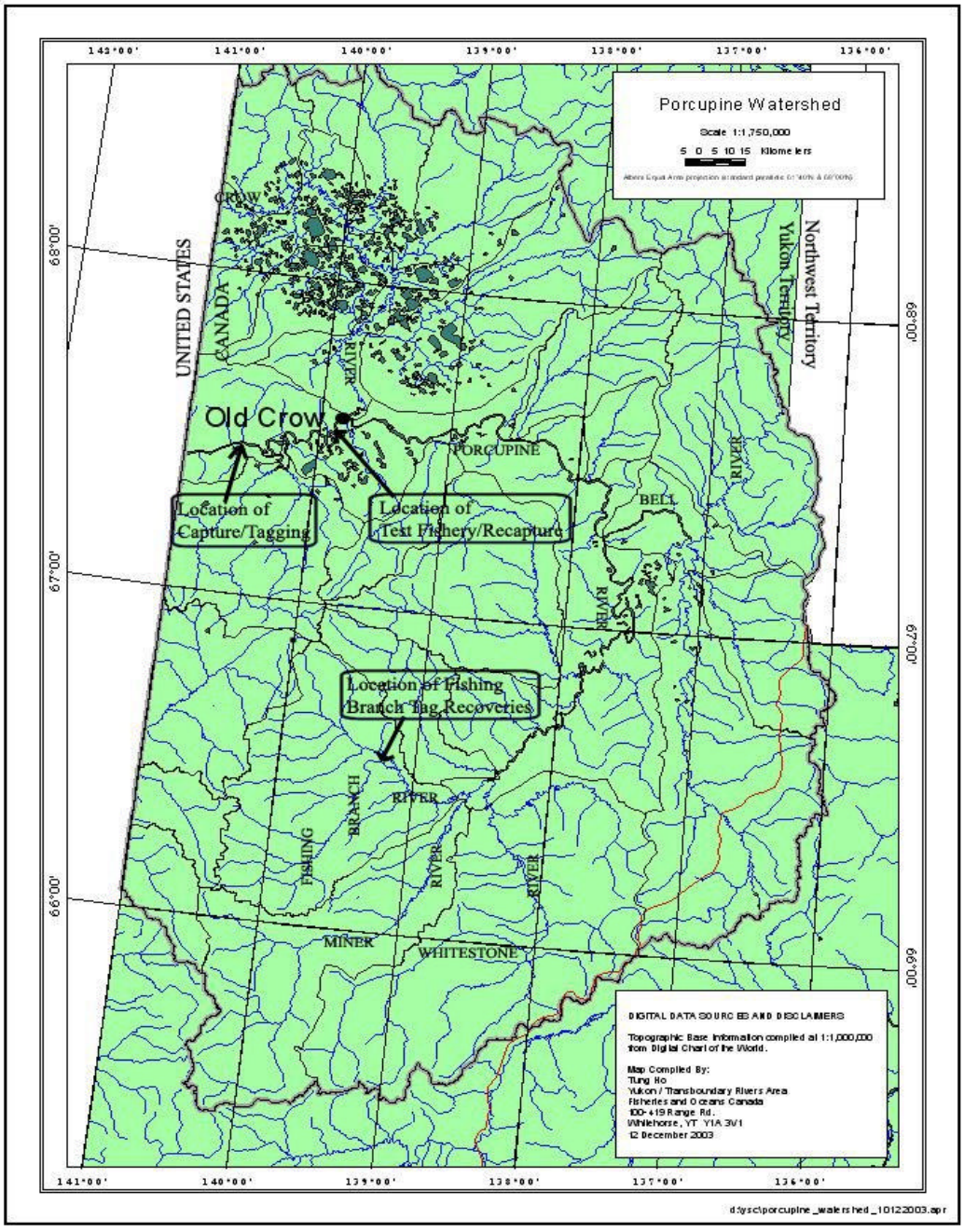
1. Anderton, Isaac, North Yukon RRC & Vuntut Gwitchin FN, 2002. Project Report: "Traditional/Local Knowledge Salmon Survey." Yukon River Panel Project CRE-16-02.
2. Department of Fisheries and Oceans (DFO), 2003. Unpublished Data.
3. Jones & Besharah, Yukon River Commercial Fishing Association & Tr'ondek Hwech'in, 2002. Project Report: "Chum Test Fishery 2002." Yukon River Panel Project CRE-09-02.
4. Sheepway, Darryl, North Yukon RRC & Department of Fisheries an Oceans, 2002. Project Report: "Fall Chum Test Fishery-Porcupine River." Yukon River Panel Project CRE-97-02.

6 Raw Data

All raw data remains on file with the North Yukon Renewable Resources Council.

7 Appendices

7.1 Map of Tagging, Recapture, & Recovery Locations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141°00'
140°00'
139°00'
138°00'
137°00'
136°00'
68°00'
67°00'
66°00'
UNITED STATES
CANADA
CROW
RIVER
Old Crow
PORCUPINE
RIVER
Yukon Territory
Northwest Territory
BELL
RIVER
Location of Capture/Tagging
Location of Test Fishery/Recapture
Location of Fishing Branch Tag Recoveries
FISHING
BRANCH
RIVER
RIVER
RIVER
MINER
WHITESTONE
DIGITAL DATA SOURCES AND DISCLAIMERS
Topographic Base Information compiled at 1:1,000,000 from Digital Chart of the World.
Map Compiled By:
Tung Ho
Yukon / Transboundary Rivers Area
Fisheries and Oceans Canada
100-419 Range Rd.
Whitehorse, YT Y1A 3V1
12 December 2003
d:\yscs\porcupine_watershed_10122003.apr

7.2 Distance Travelled Data for Tagged Chum Recaptured in Test Fishery

Tag #	Date Applied	Date Recovered	Days Travelled	Rate (Km/Day)
176	Sept. 19th	Sept. 22nd	3	17.7
195	Sept. 20th	Sept. 22nd	2	26.5
243	Sept. 23rd	Sept. 26th	3	17.7
252	Sept. 24th	Sept. 27th	3	17.7
257	Sept. 24th	Sept. 28th	4	13.3
		Average	3	18.6

7.3 Distance Travelled Data for Tagged Chum Recovered at Fishing Branch

Tag #	Date Applied	Date Recovered	Days Travelled	Rate (Km/Day)
32	Aug. 30th	Sept. 16th	17	25.0
35	Aug. 31st	Sept. 21st	21	20.2
36	Aug. 31st	Sept. 15th	15	28.3
40	Aug. 31st	Sept. 24th	24	17.7
43	Aug. 31st	Sept. 11th	11	38.6
45	Sept. 3rd	Sept. 21st	20	21.3
48	Sept. 3rd	Sept. 19th	16	26.6
50	Sept. 3rd	Sept. 17th	14	30.4
56	Sept. 3rd	Sept. 21st	18	23.6
57	Sept. 3rd	Sept. 23rd	20	21.3
59	Sept. 3rd	Sept. 27th	24	17.7
65	Sept. 3rd	Sept. 17th	14	30.4
66	Sept. 3rd	Sept. 19th	16	26.6
68	Sept. 3rd	Sept. 18th	15	28.3
73	Sept. 3rd	Sept. 24th	21	20.2
74	Sept. 3rd	Sept. 19th	16	26.6
80	Sept. 4th	Sept. 19th	15	28.3
81*	Sept. 4th	Oct. 10th	36*	11.8*
84	Sept. 4th	Oct. 2nd	28	15.2
87*	Sept. 4th	Oct. 11th	37*	11.5*
88*	Sept. 4th	Oct. 10th	36*	11.8*
89	Sept. 4th	Sept. 20th	16	26.6
90	Sept. 4th	Sept. 19th	15	28.3
110	Sept. 5th	Sept. 19th	14	30.4
112	Sept. 5th	Sept. 22nd	17	25.0
113	Sept. 5th	Sept. 30th	25	17.0
116	Sept. 5th	Sept. 22nd	17	25.0
121	Sept. 5th	Sept. 21st	16	26.6
124	Sept. 5th	Sept. 22nd	17	25.0
126	Sept. 6th	Sept. 25th	19	22.4
134	Sept. 6th	Sept. 27th	21	20.2

140	Sept. 7th	Sept. 26th	19	22.4
141	Sept. 7th	Sept. 20th	13	32.7
142*	Sept. 7th	Sept. 27th	20*	21.3*
143	Sept. 7th	Sept. 24th	17	25.0
144	Sept. 7th	Oct. 5th	28	15.2
153	Sept. 7th	Sept. 28th	21	20.2
160	Sept. 19th	Oct. 5th	16	26.6
166	Sept. 19th	Oct. 3rd	14	30.4
168	Sept. 19th	Oct. 5th	16	26.6
171	Sept. 19th	Oct. 3rd	14	30.4
174	Sept. 19th	Oct. 3rd	14	30.4
175	Sept. 19th	Oct. 5th	16	26.6
179	Sept. 19th	Oct. 3rd	14	30.4
181	Sept. 20th	Oct. 5th	15	28.3
182	Sept. 20th	Oct. 4th	14	30.4
183	Sept. 20th	Oct. 6th	16	26.6
184	Sept. 20th	Oct. 9th	19	22.4
187	Sept. 20th	Oct. 4th	14	30.4
193	Sept. 20th	Oct. 9th	19	22.4
201	Sept. 20th	Oct. 2nd	12	35.4
203	Sept. 20th	Oct. 4th	14	30.4
205	Sept. 20th	Oct. 3rd	13	32.7
207	Sept. 20th	Oct. 4th	14	30.4
211	Sept. 21st	Oct. 6th	15	28.3
212	Sept. 21st	Oct. 8th	17	25.0
217	Sept. 21st	Oct. 5th	14	30.4
218	Sept. 21st	Oct. 4th	13	32.7
221	Sept. 21st	Oct. 6th	15	28.3
226	Sept. 21st	Oct. 6th	15	28.3
229	Sept. 22nd	Oct. 9th	17	25.0
231	Sept. 22nd	Oct. 7th	15	28.3
233	Sept. 22nd	Oct. 8th	16	26.6
234	Sept. 22nd	Oct. 12th	20	21.3
235	Sept. 22nd	Oct. 8th	16	26.6
236	Sept. 22nd	Oct. 14th	22	19.3
239	Sept. 23rd	Oct. 9th	16	26.6
240	Sept. 23rd	Oct. 6th	13	32.7
245	Sept. 23rd	Oct. 10th	17	25.0
247	Sept. 23rd	Oct. 10th	17	25.0
256	Sept. 24th	Oct. 10th	16	26.6
257	Sept. 24th	Oct. 8th	14	30.4
260	Sept. 24th	Oct. 10th	16	26.6

261	Sept. 24th	Oct. 9th	15	28.3
262	Sept. 24th	Oct. 11th	17	25.0
263	Sept. 25th	Oct. 9th	14	30.4
267	Sept. 25th	Oct. 12th	17	25.0
268	Sept. 25th	Oct. 12th	17	25.0
269	Sept. 25th	Oct. 12th	17	25.0
274	Sept. 25th	Oct. 11th	16	26.6
275	Sept. 26th	Oct. 11th	15	28.3
279	Sept. 26th	Oct. 15th	19	22.4
280	Sept. 26th	Oct. 15th	19	22.4
281	Sept. 26th	Oct. 11th	15	28.3
283	Sept. 26th	Oct. 12th	16	26.6
285	Sept. 26th	Oct. 12th	16	26.6
286	Sept. 26th	Oct. 13th	17	25.0
289	Sept. 26th	Oct. 11th	15	28.3
301	Sept. 27th	Oct. 11th	14	32.7
305	Sept. 27th	Oct. 12th	15	28.3
310	Sept. 27th	Oct. 12th	15	28.3
312	Sept. 27th	Oct. 12th	15	28.3
313	Sept. 27th	Oct. 15th	18	23.6
315	Sept. 27th	Oct. 14th	17	25.0
		Average	16.6	25.6

* Tags recovered from carcasses that washed downstream into the weir. Travel times for these not included in averages, as they are not representative of actual travel times.

7.4 Capture/Tagging Data

Chum Capture/Marking Data, Sept. 2003					
Species	**Date/Time**	**Length (cm)**	**Sex**	**Tag #**	**Comments**
chum	Aug. 30th, 12:00pm		F	T00030	
chum	Aug. 30th, 12:00pm	61	F	31	
chum	Aug. 30th, 12:00pm	69	F	32	
chum	Aug. 31st, 11:15am	69	M	32*	*double # tags, used until Sept. 5th
chum	Aug. 31st, 11:15am	68	F	33	
chum	Aug. 31st, 11:15am	67	F	33*	
chum	Aug. 31st, 11:15am	76	M	34	1/2 of adipose fin missing--torn/cut
chum	Aug. 31st, 11:15am	63	F	35	
chum	Aug. 31st, 11:15am	64	F	36	
chum	Aug. 31st, 11:15am	70	M	37	
chum	Aug. 31st, 11:15am	64	F	38	
chum	Aug. 31st, 11:15am	77	M	39	
chum	Aug. 31st, 11:15am	68	M	40	
chum	Aug. 31st, 11:15am	74	M	41	
chum	Aug. 31st, 11:15am	57	F	42	

chum	Aug. 31st, 11:15am	70	M	43	
chum	Sept. 3rd, 1:15pm	67	F	44	
chum	Sept. 3rd, 1:15pm	58	M	45	
chum	Sept. 3rd, 1:15pm	50	F	46	
chum	Sept. 3rd, 1:15pm	51	M	47	
chum	Sept. 3rd, 1:15pm	69	M	48	
chum	Sept. 3rd, 1:15pm	58	F	49	
chum	Sept. 3rd, 1:15pm	57	F	49*	
chum	Sept. 3rd, 1:15pm	59	F	49*	
chum	Sept. 3rd, 1:15pm	61	F	50	
chum	Sept. 3rd, 1:15pm	65	F	51	
chum	Sept. 3rd, 1:15pm	57	F	52	
inconnu	Sept. 3rd, 1:15pm	61			mortality
chum	Sept. 3rd, 1:15pm	60	F	53	
chum	Sept. 3rd, 1:15pm	58	F	55	
chum	Sept. 3rd, 1:15pm	60	F	56	
chum	Sept. 3rd, 1:15pm	64	M	57	
chum	Sept. 3rd, 1:15pm	59	F	58	
chum	Sept. 3rd, 1:15pm	65	F	59	
chum	Sept. 3rd, 1:15pm	71	M	60	
chum	Sept. 3rd, 1:15pm	66	F	61	
chum	Sept. 3rd, 1:15pm	60	F	62	
chum	Sept. 3rd, 1:15pm	55	F	63	
chum	Sept. 3rd, 1:15pm	63	F	64	
chum	Sept. 3rd, 1:15pm	62	F	64	
chum	Sept. 3rd, 1:15pm	64	F	65	
chum	Sept. 3rd, 1:15pm	60	F	66	
chum	Sept. 3rd, 9:15pm	69	M	67	
chum	Sept. 3rd, 9:15pm	67	F	68	
chum	Sept. 3rd, 9:15pm	62	F	69	
chum	Sept. 3rd, 9:15pm	65	F	70	
chum	Sept. 3rd, 9:15pm	65	F	71	
chum	Sept. 3rd, 9:15pm	66	F	72	
chum	Sept. 3rd, 9:15pm	64	F	73	
chum	Sept. 3rd, 9:15pm	70	M	74	
pike	Sept. 3rd, 9:15pm	55			
lake whitefish	Sept. 4th, 11:20am	48			
chum	Sept. 4th, 11:20am	66	M	75	
least cisco	Sept. 4th, 11:20am	29			
chum	Sept. 4th, 11:20am	64	F	76	
chum	Sept. 4th, 11:20am	70	M	76*	
chum	Sept. 4th, 11:20am	64.5	F	77	
chum	Sept. 4th, 11:20am	66	F	78	
chum	Sept. 4th, 11:20am	66	M	79	
chum	Sept. 4th, 11:20am	61	F	80	
chum	Sept. 4th, 11:20am	60	F	81	

chum	Sept. 4th, 11:20am	67	M	82	
chum	Sept. 4th, 11:20am	69	M	82*	
chum	Sept. 4th, 11:20am	64	M	83	
chum	Sept. 4th, 11:20am	67	F	84	
chum	Sept. 4th, 11:20am	65	F	85	
chum	Sept. 4th, 11:20am	65	M	86	
chum	Sept. 4th, 11:20am	66	F	87	
chum	Sept. 4th, 11:20am	66	F	88	
chum	Sept. 4th, 11:20am	67	F	89	
chum	Sept. 4th, 11:20am	65	F	90	
chum	Sept. 4th, 11:20am	62	F	91	
chum	Sept. 4th, 11:20am	64	F	92	
chum	Sept. 4th, 11:20am	60	F	93	
chum	Sept. 4th, 11:20am	59	F	94	
chum	Sept. 4th, 11:20am	61.5	F	95	
chum	Sept. 4th, 11:20am	59.5	F	96	
chum	Sept. 4th, 8:15pm	59	F	97	
chum	Sept. 4th, 8:15pm	62	F	98	
chum	Sept. 4th, 8:15pm	68	M	99	
chum	Sept. 5th, 2:30pm	64	M	100	
chum	Sept. 5th, 2:30pm	60	F	101	
chum	Sept. 5th, 2:30pm	70	M	102	
chum	Sept. 5th, 2:30pm	60	F	103	
chum	Sept. 5th, 2:30pm	62	F	104	
chum	Sept. 5th, 2:30pm	69	M	105	
chum	Sept. 5th, 2:30pm	56	F	106	
chum	Sept. 5th, 2:30pm	65	F	107	
chum	Sept. 5th, 2:30pm	64	M	108	
chum	Sept. 5th, 2:30pm	70	M	109	
chum	Sept. 5th, 2:30pm	63	F	110	
chum	Sept. 5th, 2:30pm	60	M	111	
chum	Sept. 5th, 2:30pm	61	M	112	
chum	Sept. 5th, 2:30pm	66	M	113	
chum	Sept. 5th, 2:30pm	59	F	114	
chum	Sept. 5th, 2:30pm	68	M	115	orange fungus on belly
chum	Sept. 5th, 2:30pm	67	F	116	
chum	Sept. 5th, 2:30pm	58	F	117	
chum	Sept. 5th, 2:30pm	70	M	118	orange fungus on nose
chum	Sept. 5th, 2:30pm	62	F	119	
chum	Sept. 5th, 2:30pm	65	M	120	
chum	Sept. 5th, 2:30pm	64	M		mortality
chum	Sept. 5th, 2:30pm	66	F	121	
chum	Sept. 5th, 2:30pm	60	F	122	
whitefish	Sept. 5th, 2:30pm	40			mortality
pike	Sept. 5th, 2:30pm	56			mortality
chum	Sept. 5th, 10:05pm	66.5	M	123	

chum	Sept. 5th, 10:05pm	65.5	F	124	
chum	Sept. 6th, 12:45pm	61	F	125	
chum	Sept. 6th, 12:45pm	59	F	126	
chum	Sept. 6th, 12:45pm	59	F	127	
chum	Sept. 6th, 12:45pm	64	F	128	
chum	Sept. 6th, 12:45pm	62	M	129	
chum	Sept. 6th, 12:45pm	64	F	130	
chum	Sept. 6th, 12:45pm	59	F	131	
chum	Sept. 6th, 12:45pm	65	M	132	
chum	Sept. 6th, 12:45pm	70	M	133	
chum	Sept. 6th, 12:45pm	67	M	134	
chum	Sept. 6th, 12:45pm	65	F	135	
chum	Sept. 6th, 12:45pm	64	F	136	
chum	Sept. 6th, 12:45pm	64	M	137	
inconnu	Sept. 6th, 12:45pm	52			
chum	Sept. 6th, 6:15pm	72	M	138	
chum	Sept. 7th, 11:00am	67	M	139	
chum	Sept. 7th, 11:00am	67	M	140	
chum	Sept. 7th, 11:00am	63	M	141	
chum	Sept. 7th, 11:00am	67	M	142	
chum	Sept. 7th, 11:00am	60	F	143	
chum	Sept. 7th, 11:00am	67	F	144	
chum	Sept. 7th, 11:00am	60	F	145	
chum	Sept. 7th, 11:00am	64	M	146	
chum	Sept. 7th, 11:00am	71	M	147	
chum	Sept. 7th, 11:00am	64	F	148	
chum	Sept. 7th, 11:00am	68	M	149	
chum	Sept. 7th, 11:00am	66	F	150	
chum	Sept. 7th, 11:00am	66	M	151	
chum	Sept. 7th, 11:00am	63	F	152	
chum	Sept. 7th, 11:00am	56	F	153	
chum	Sept. 7th, 11:00am	67	F	154	
chum	Sept. 7th, 11:00am	62	F	155	
chum	Sept. 13th, 1:40pm	69	M	156	
chum	Sept. 13th, 1:40pm	75	M	157	
chum	Sept. 19th	60	M	158	
chum	Sept. 19th	61	M	160	
chum	Sept. 19th	59	F	161	
chum	Sept. 19th	66	M	162	
chum	Sept. 19th	68	F	163	
chum	Sept. 19th	65	F	164	
chum	Sept. 19th	72	M	165	
chum	Sept. 19th	71	M	166	
chum	Sept. 19th	59	F	167	
chum	Sept. 19th	69	M	168	
chum	Sept. 19th	67	M	169	

chum	Sept. 19th	64	M	170	
chum	Sept. 19th	72	M	171	
chum	Sept. 19th	58	F	172	
chum	Sept. 19th	61	M	173	
chum	Sept. 19th	64	M	174	
chum	Sept. 19th	72	M	175	
chum	Sept. 19th	52	F	176	
chum	Sept. 19th	63	F	177	
chum	Sept. 19th	57	F	178	
chum	Sept. 19th	69	M	179	
chum	Sept. 19th	56	F	180	
chum	Sept. 20th	69	M	181	claw marks
chum	Sept. 20th	66	F	182	
chum	Sept. 20th	71	M	183	
chum	Sept. 20th	73	M	184	
chum	Sept. 20th	72	M	185	
chum	Sept. 20th	69	M	186	
chum	Sept. 20th	72	M	187	
chum	Sept. 20th	68	F	188	
chum	Sept. 20th	75	M	189	
chum	Sept. 20th	70	M	190	
chum	Sept. 20th	61	M	191	
chum	Sept. 20th	68	F	192	
chum	Sept. 20th	67	M	193	
chum	Sept. 20th	60	F	194	
chum	Sept. 20th	67	M	195	
chum	Sept. 20th	64	F	196	
chum	Sept. 20th	65	M	197	
chum	Sept. 20th	62	F	198	
chum	Sept. 20th	72	M	199	
chum	Sept. 20th	61	F	200	
chum	Sept. 20th	65	M	201	
chum	Sept. 20th	59	F	202	
chum	Sept. 20th	62	F	203	
chum	Sept. 20th	69	M	204	
chum	Sept. 20th	68	M	205	
chum	Sept. 20th	63	M	206	
chum	Sept. 20th	70	M	207	
chum	Sept. 20th	61	F	208	
chum	Sept. 21st	71	M	209	
chum	Sept. 21st	62	F	210	
chum	Sept. 21st	63	F	211	
chum	Sept. 21st	60	M	212	
chum	Sept. 21st	63	M	213	
chum	Sept. 21st	62	M	214	
chum	Sept. 21st	61	F	215	

chum	Sept. 21st	54	F	216	
chum	Sept. 21st	69	M	217	
chum	Sept. 21st	66	M	218	
chum	Sept. 21st	61	F	219	
chum	Sept. 21st	63	M	220	
chum	Sept. 21st	62.5	F	221	
chum	Sept. 21st	58	F	222	
chum	Sept. 21st	67	M	223	
chum	Sept. 21st	61	F	224	
chum	Sept. 21st	62	F	225	
chum	Sept. 21st	63.5	M	226	
chum	Sept. 21st	63	F	227	
chum	Sept. 22nd	70	M	228	
chum	Sept. 22nd	61	F	229	
chum	Sept. 22nd	68	M	230	
chum	Sept. 22nd	64	M	231	
chum	Sept. 22nd	68	M	232	
chum	Sept. 22nd	61	F	233	
chum	Sept. 22nd	63	F	234	
chum	Sept. 22nd	63	M	235	
chum	Sept. 22nd	57	F	236	
chum	Sept. 23rd	69	M	237	
chum	Sept. 23rd	68	M	238	
chum	Sept. 23rd	66	M	239	
chum	Sept. 23rd	67	M	240	
chum	Sept. 23rd	67	M	241	
chum	Sept. 23rd	72	M	242	
chum	Sept. 23rd	66	M	243	
chum	Sept. 23rd	65	M	244	
chum	Sept. 23rd	64	F	245	
chum	Sept. 23rd	62	F	246	
chum	Sept. 23rd	61	F	247	
chum	Sept. 23rd	78.5	M	248	biggest
chum	Sept. 23rd	70	M	249	
chum	Sept. 23rd	69	M	250	
chum	Sept. 24th	71	M	251	
chum	Sept. 24th	63	M	252	
chum	Sept. 24th	68	M	253	
chum	Sept. 24th	65	M	254	
chum	Sept. 24th	62	F	255	
chum	Sept. 24th	72	M	256	
chum	Sept. 24th	61	M	257	
chum	Sept. 24th	68	M	258	
chum	Sept. 24th	69	M	259	half fungus
chum	Sept. 24th	67	M	260	
chum	Sept. 24th	61	M	261	

chum	Sept. 24th	65	F	262	
chum	Sept. 25th	71	M	263	
chum	Sept. 25th	61	M	264	
chum	Sept. 25th	62	F	265	
chum	Sept. 25th	60	F	266	
chum	Sept. 25th	58	F	267	
chum	Sept. 25th	64	M	268	
chum	Sept. 25th	65	M	269	
chum	Sept. 25th	66	M	270	
chum	Sept. 25th	66	M	271	
chum	Sept. 25th	56	F	272	
chum	Sept. 25th	66	F	273	
chum	Sept. 25th	64	M	274	
chum	Sept. 26th	67	M	275	
chum	Sept. 26th	61	F	276	
chum	Sept. 26th	66	F	277	
chum	Sept. 26th	72	M	278	
chum	Sept. 26th	61	F	279	
chum	Sept. 26th	64	F	281	
chum	Sept. 26th	62	F	282	
chum	Sept. 26th	66	M	283	
chum	Sept. 26th	64	M	284	
chum	Sept. 26th	67	M	285	
chum	Sept. 26th	68	M	286	
chum	Sept. 26th	60	F	287	
chum	Sept. 26th	58	F	288	
chum	Sept. 26th	58	F	289	
chum	Sept. 26th	65	M	290	
chum	Sept. 26th	63	F	291	
chum	Sept. 26th	62	F	292	
chum	Sept. 26th	65	M	293	
chum	Sept. 26th	68	M	294	
chum	Sept. 27th	62	F	295	
chum	Sept. 27th	64	F	296	
chum	Sept. 27th	63	M	297	
chum	Sept. 27th	62	F	298	
chum	Sept. 27th	68	M	299	
chum	Sept. 27th	63	M	300	
chum	Sept. 27th	65	M	301	
chum	Sept. 27th	69	F	302	
coho	Sept. 27th	59	M		
chum	Sept. 27th	71	M	303	
chum	Sept. 27th	69	M	304	tagged by USF&WS, no adipose fin
chum	Sept. 27th	63	M	305	
chum	Sept. 27th	69	M	306	
chum	Sept. 27th	71	M	307	

chum	Sept. 27th	59	F	308	
broad whitefish	Sept. 27th	51			
chum	Sept. 27th	70	M	309	
chum	Sept. 27th	78	M	310	
chum	Sept. 27th	65	M	311	
chum	Sept. 27th	66	M	312	
chum	Sept. 27th	59	M	313	
chum	Sept. 27th	60	F	314	
chum	Sept. 27th	63	M	315	
chum	Sept. 27th	72	M	316	
chum	Sept. 27th	63	F	317	
chum	Sept. 27th	63.5	M	318	

7.5 Test Fishery/Recapture Data

Test Fishery/Recapture Data, Sept. 2003					
Species	**Date/Time**	**Length (cm)**	**Sex**	**Tag #**	**Comments**
chum	Sept. 4th, 9:00pm	68.5	F	N	
chum	Sept. 4th, 9:00pm	72	M	N	
chum	Sept. 4th, 9:00pm	69	M	N	
chum	Sept. 4th, 9:00pm	65	M	N	
chum	Sept. 4th, 9:00pm	67	M	N	
chum	Sept. 4th, 9:00pm	75	M	N	
chum	Sept. 4th, 9:00pm	74	M	N	
chum	Sept. 4th, 9:00pm	66.5	M	N	
chum	Sept. 4th, 9:00pm	72	M	N	
chum	Sept. 4th, 9:00pm	74	M	N	
chum	Sept. 4th, 9:00pm	75	M	N	
chum	Sept. 4th, 9:00pm	71	M	N	
chum	Sept. 4th, 9:00pm	69	M	N	
chum	Sept. 5th, 9:00am	74	M	N	
chum	Sept. 5th, 9:00am	71	M	N	
chum	Sept. 5th, 9:00am	63	F	N	
chum	Sept. 5th, 9:00am	79	M	N	
chum	Sept. 5th, 9:00am	70.5	M	N	
chum	Sept. 5th, 9:00am	69.5	M	N	
chum	Sept. 5th, 9:00am	66.5	F	N	
chum	Sept. 5th, 9:00am	76.5	M	N	
chum	Sept. 5th, 9:00am	71	M	N	
chum	Sept. 5th, 9:00am	68	M	N	
chum	Sept. 5th, 9:00am	70	M	N	
chum	Sept. 5th, 9:00am	84	M	N	
chum	Sept. 5th, 9:00am	67.5	M	N	
chum	Sept. 5th, 9:00am	62	M	N	
chum	Sept. 5th, 9:00am	71	M	N	
chum	Sept. 5th, 9:00am	72.5	M	N	

chum	Sept. 5th, 9:00am	67.5	M	N	
chum	Sept. 5th, 9:00am	64	M	N	
chum	Sept. 5th, 5:00pm	68.5	M	Y	tagged by USF&WS
chum	Sept. 5th, 5:00pm	65	F	N	
chum	Sept. 5th, 7:30pm	65	F	N	
chum	Sept. 5th, 7:30pm	66	M	N	
chum	Sept. 6th, 8:00am	71	M	N	
chum	Sept. 6th, 8:00am	74	M	N	
chum	Sept. 6th, 8:00am	67	M	N	
chum	Sept. 6th, 8:00am	69	M	N	
chum	Sept. 6th, 8:00am	65	F	N	
chum	Sept. 6th, 8:00am	70	M	Y	tagged by USF&WS
chum	Sept. 6th, 8:00am	74	M	N	
chum	Sept. 6th, 9:00pm	70	M	N	
chum	Sept. 6th, 9:00pm	69	M	N	
chum	Sept. 6th, 9:00pm	73	M	N	
chum	Sept. 6th, 9:00pm	70	M	N	
chum	Sept. 7th, 9:30am	68	M	N	
chum	Sept. 7th, 9:30am	73	M	N	
chum	Sept. 7th, 9:30am	67	M	N	
chum	Sept. 7th, 9:30am	71	M	N	
chum	Sept. 7th, 9:30am	68	M	N	
chum	Sept. 7th, 9:30am	70	M	N	
chum	Sept. 7th, 9:30am	64.5	M	N	
chum	Sept. 7th, 9:30am	67	M	N	
chum	Sept. 7th, 9:30am	61.5	M	N	
chum	Sept. 7th, 9:30am	64	M	N	
chum	Sept. 7th, 9:30am	71	M	N	
chum	Sept. 7th, 9:30am	65.5	M	N	
chum	Sept. 7th, 8:00pm	70.5	M	N	
chum	Sept. 7th, 8:00pm	64	M	N	
chum	Sept. 7th, 8:00pm	69	M	N	
chum	Sept. 7th, 8:00pm	68	M	N	
chum	Sept. 7th, 8:00pm	68	M	N	
chum	Sept. 7th, 8:00pm	71	M	N	
chum	Sept. 8th, 10:00am	68.5	M	N	
chum	Sept. 8th, 10:00am	74.5	M	N	
chum	Sept. 8th, 10:00am	72	M	N	
chum	Sept. 8th, 10:00am	67.5	F	N	
chum	Sept. 8th, 10:00am	69.5	M	N	
chum	Sept. 8th, 10:00am	66.5	M	N	
chum	Sept. 8th, 10:00am	76	M	N	
chum	Sept. 8th, 10:00am	69	M	N	
chum	Sept. 8th, 10:00am	70	M	N	
chum	Sept. 8th, 10:00am	66	M	N	
chum	Sept. 9th	61.5	F	N	

chum	Sept. 9th	64	M	N	
chum	Sept. 9th	66	M	N	
chum	Sept. 9th	64	M	N	
chum	Sept. 9th	64	M	N	
chum	Sept. 9th	63	M	N	
chum	Sept. 9th	59	F	N	
chum	Sept. 9th	61	F	N	
chum	Sept. 12th, 9:00am	70	M	N	
chum	Sept. 12th, 9:00am	65	M	N	
chum	Sept. 12th, 9:00am	67	M	N	
chum	Sept. 12th, 9:00am	64	M	N	
chum	Sept. 12th, 9:00am	67	M	N	
chum	Sept. 12th, 9:00am	68	M	N	
chum	Sept. 12th, 9:00am	74	M	N	
chum	Sept. 12th, 9:00am	71	M	N	
chum	Sept. 12th, 9:00am	64	M	N	
chum	Sept. 12th, 9:00am	69	M	N	
chum	Sept. 12th, 9:00am	70	M	N	
chum	Sept. 12th, 9:00am	72	M	N	
chum	Sept. 12th, 9:00am	74	M	N	
chum	Sept. 12th, 9:00am	74	M	N	
chum	Sept. 12th, 9:00am	69	M	N	
chum	Sept. 12th, 9:00am	71	M	N	
chum	Sept. 12th, 9:00am	69	M	N	
chum	Sept. 12th, 9:00am	74	M	N	
chum	Sept. 12th, 9:00am	74	M	N	
chum	Sept. 12th, 9:00am	64	F	N	
chum	Sept. 12th, 9:00am	67	F	N	
chum	Sept. 12th, 9:00am	61	F	N	
chum	Sept. 12th, 9:00am	69	F	N	
chum	Sept. 12th, 9:00am	59	F	N	
chum	Sept. 12th, 9:00am	61	F	N	
chum	Sept. 21st	71	M	N	
chum	Sept. 21st	69	M	N	
chum	Sept. 21st	74	M	N	
chum	Sept. 21st	67	M	N	
chum	Sept. 21st	68	M	N	
chum	Sept. 21st	71	M	N	
chum	Sept. 21st	72	M	N	
chum	Sept. 21st	74	M	N	
chum	Sept 22nd, 10:00 am	60	F	T000175	
chum	Sept 22nd, 10:00 am	71	M	N	
chum	Sept 22nd, 10:00 am	74	M	N	
chum	Sept 22nd, 10:00 am	67	M	N	
chum	Sept 22nd, 10:00 am	64	F	N	
chum	Sept 22nd, 10:00 am	63	F	N	

chum	Sept 22nd, 10:00 am	67	F	N	
chum	Sept 22nd, 10:00 am	72	M	N	
chum	Sept 22nd, 10:00 am	74	M	N	
chum	Sept 22nd, 10:00 am	71	M	N	
chum	Sept 22nd, 10:00 am	72	M	N	
chum	Sept 22nd, 10:00 am	71	M	N	
chum	Sept 22nd, 10:00 am	72	M	N	
chum	Sept 22nd, 10:00 am	64	F	N	
chum	Sept 22nd, 10:00 am	63	F	N	
chum	Sept 22nd, 9:00 pm	68	M	195	
chum	Sept 22nd, 9:00 pm	71	M	N	
chum	Sept 22nd, 9:00 pm	69	M	N	
chum	Sept 22nd, 9:00 pm	72	M	N	
chum	Sept 22nd, 9:00 pm	68	M	N	
chum	Sept 22nd, 9:00 pm	65	M	N	
chum	Sept 22nd, 9:00 pm	72	M	N	
chum	Sept 22nd, 9:00 pm	69	M	N	
chum	Sept 22nd, 9:00 pm	74	M	N	
chum	Sept 22nd, 9:00 pm	76	M	N	
chum	Sept 22nd, 9:00 pm	72	M	N	
chum	Sept 22nd, 9:00 pm	73.5	M	N	
chum	Sept 22nd, 9:00 pm	69	M	N	
chum	Sept 22nd, 9:00 pm	72	M	N	
chum	Sept 22nd, 9:00 pm	74	M	N	
chum	Sept 22nd, 9:00 pm	68	F	N	
chum	Sept 22nd, 9:00 pm	72	M	N	
chum	Sept 22nd, 9:00 pm	74	M	N	
chum	Sept 23rd, 9:30 am	74	M	N	
chum	Sept 23rd, 9:30 am	70	M	N	
chum	Sept 23rd, 9:30 am	72	M	N	
chum	Sept 23rd, 9:30 am	69	M	N	
chum	Sept 23rd, 9:30 am	70	M	N	
chum	Sept 23rd, 9:30 am	65	F	N	
chum	Sept 23rd, 9:30 am	67	F	N	
chum	Sept 23rd, 9:30 am	72	M	N	
chum	Sept 23rd, 9:30 am	74	M	Y	tagged by USF&WS
chum	Sept 23rd, 9:30 am	75	M	N	
chum	Sept 23rd, 9:30 am	71	M	N	
chum	Sept 23rd, 9:30 am	70	M	N	
chum	Sept 23rd, 9:30 am	72.5	M	N	
chum	Sept 23rd, 9:30 am	71	M	N	
chum	Sept 23rd, 9:30 am	74	M	N	
chum	Sept 23rd, 9:30 am	76	M	N	
chum	Sept 23rd, 9:30 am	67	F	N	
chum	Sept 23rd, 9:30 am	68	M	N	
chum	Sept 23rd, 9:30 am	69	M	N	

chum	Sept 23rd, 9:30 am	72	M	N	
chum	Sept 23rd, 8:00 pm	69	M	N	
chum	Sept 23rd, 8:00 pm	72	M	N	
chum	Sept 23rd, 8:00 pm	72	M	N	
chum	Sept 23rd, 8:00 pm	74	M	N	
chum	Sept 23rd, 8:00 pm	75	M	N	
chum	Sept 23rd, 8:00 pm	71	M	N	
chum	Sept 23rd, 8:00 pm	69	F	N	
chum	Sept 23rd, 8:00 pm	70	M	N	
chum	Sept 23rd, 8:00 pm	72	M	N	
chum	Sept 23rd, 8:00 pm	71	M	N	
chum	Sept 23rd, 8:00 pm	72.5	M	N	
chum	Sept 23rd, 8:00 pm	67	F	N	
chum	Sept 24th, 9:30 am	71	M	N	
chum	Sept 24th, 9:30 am	69	M	N	
chum	Sept 24th, 9:30 am	65	F	N	
chum	Sept 24th, 9:30 am	64	F	N	
chum	Sept 24th, 9:30 am	70	M	N	
chum	Sept 24th, 9:30 am	74	M	N	
chum	Sept 24th, 9:30 am	71	M	N	
chum	Sept 24th, 9:30 am	71	M	N	
chum	Sept 24th, 9:30 am	74	M	N	
chum	Sept 24th, 9:30 am	71	M	N	
chum	Sept 24th, 9:30 am	73	M	N	
chum	Sept 24th, 9:30 am	72	M	N	
chum	Sept 24th, 9:30 am	70	M	N	
chum	Sept 24th, 9:30 am	69	M	N	
chum	Sept 24th, 9:30 am	72	M	N	
chum	Sept 24th, 9:30 am	65	F	N	
chum	Sept 24th, 9:30 am	62	F	N	
chum	Sept 24th, 8:00 pm	71	M	N	
chum	Sept 24th, 8:00 pm	74	M	N	
chum	Sept 24th, 8:00 pm	69	M	N	
chum	Sept 24th, 8:00 pm	66	F	N	
chum	Sept 24th, 8:00 pm	67	M	N	
chum	Sept 24th, 8:00 pm	72	M	N	
chum	Sept 24th, 8:00 pm	67	F	N	
chum	Sept 24th, 8:00 pm	65	F	N	
chum	Sept 24th, 8:00 pm	72	M	N	
chum	Sept 24th, 8:00 pm	71	M	N	
chum	Sept 24th, 8:00 pm	69	M	N	
chum	Sept 24th, 8:00 pm	63	F	N	
chum	Sept 24th, 8:00 pm	69	M	N	
chum	Sept 25th. 9:30 am	75	M	N	
chum	Sept 25th. 9:30 am	72	M	N	
chum	Sept 25th. 9:30 am	72	M	N	

chum	Sept 25th. 9:30 am	70	M	N	
chum	Sept 25th. 9:30 am	69	M	N	
chum	Sept 25th. 9:30 am	67	M	N	
chum	Sept 25th. 9:30 am	68	M	N	
chum	Sept 25th. 9:30 am	63	F	N	
chum	Sept 25th. 9:30 am	65	F	N	
chum	Sept 25th. 9:30 am	72	M	N	
chum	Sept 25th. 9:30 am	74	M	N	
chum	Sept 25th. 9:30 am	71	M	N	
chum	Sept 25th. 9:30 am	67	M	N	
chum	Sept 25th. 9:30 am	71	M	N	
chum	Sept 25th. 9:30 am	69	M	N	
chum	Sept 25th. 9:30 am	72	M	N	
chum	Sept 25th. 9:30 am	76	M	N	
chum	Sept 25th. 9:30 am	78	M	N	
chum	Sept 25th. 9:30 am	67	F	N	
chum	Sept 25th. 9:30 am	64	F	N	
chum	Sept 25th. 9:30 am	65	F	N	
chum	Sept 25th. 9:30 am	71	M	N	
chum	Sept 25th, 6:00 pm	71	M	N	
chum	Sept 25th, 6:00 pm	69	M	N	
chum	Sept 25th, 6:00 pm	61	F	N	
chum	Sept 25th, 6:00 pm	59	F	N	
chum	Sept 25th, 6:00 pm	70	M	N	
chum	Sept 25th, 6:00 pm	72	M	N	
chum	Sept 25th, 6:00 pm	69	M	N	
chum	Sept 25th, 6:00 pm	70	M	N	
chum	Sept 25th, 6:00 pm	71	M	N	
chum	Sept 25th, 6:00 pm	61	F	N	
chum	Sept 25th, 6:00 pm	63	F	N	
chum	Sept 25th, 6:00 pm	71	M	N	
chum	Sept 25th, 6:00 pm	70	M	N	
chum	Sept 25th, 6:00 pm	62	F	N	
chum	Sept 25th, 6:00 pm	60	F	N	
chum	Sept 26th, 9:00 am	69	M	N	
chum	Sept 26th, 9:00 am	71	M	N	
chum	Sept 26th, 9:00 am	70	M	N	
chum	Sept 26th, 9:00 am	65	M	N	
chum	Sept 26th, 9:00 am	61	F	N	
chum	Sept 26th, 9:00 am	74	M	N	
chum	Sept 26th, 9:00 am	72	M	N	
chum	Sept 26th, 9:00 am	67	M	N	
chum	Sept 26th, 9:00 am	63	F	N	
chum	Sept 26th, 9:00 am	70	M	N	
chum	Sept 26th, 9:00 am	73.5	M	N	
chum	Sept 26th, 9:00 am	70	M	N	

chum	Sept 26th, 9:00 am	67	M	N	
chum	Sept 26th, 9:00 am	61	F	N	
chum	Sept 26th, 9:00 am	72	M	N	
chum	Sept 26th, 9:00 am	67	M	N	
chum	Sept 26th, 9:00 am	65	M	N	
chum	Sept 26th, 9:00 am	70	M	N	
chum	Sept 26th, 9:00 am	71	M	N	
chum	Sept 26th, 9:00 am	67	M	N	
chum	Sept 26th, 9:00 am	72	M	N	
chum	Sept 26th, 9:00 am	72	M	N	
chum	Sept 26th, 9:00 am	67	M	N	
chum	Sept 26th, 9:00 am	65	M	N	
chum	Sept 26th, 9:00 am	72	M	N	
chum	Sept 26th, 9:00 am	67.5	M	243	
chum	Sept 26th, 9:00 am	70	M	N	
chum	Sept 26th, 9:00 am	63	F	N	
chum	Sept 26th, 9:00 am	62	F	N	
chum	Sept 26th, 9:00 am	61	F	N	
chum	Sept 27th		M	252	20 males caught, 1 tagged
chum	Sept 27th		F	N	7 females caught
chum	Sept 28th		M	257	8 males caught, 1 tagged
chum	Sept 28th		F	N	7 females caught