



## 2011-2016 SUMMARY REPORT

# EVERY STURGEON COUNTS - EMERGENCY BOAT KIT PROGRAM



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### YOUTUBE VIDEO:

*Every Sturgeon Counts:*  
[www.youtube.com/watch?v=YhrEJUEi-owe&feature=colike](http://www.youtube.com/watch?v=YhrEJUEi-owe&feature=colike).  
(Click link to go to video)

### DATA FORMS:

*Sturgeon Release Form are available on the NWSRI website.*  
(Click text to go to form).

**COVER:** Releasing a sturgeon from a gill net.  
All photos are courtesy Carrier Sekani Tribal Council.

## ACKNOWLEDGEMENT

We thank the many hours of dedication from all the Fisher Families, By-catch Monitors, Program Leaders, and volunteers of this recovery initiative of the NWSRI, as well as all our funders.

This project was undertaken with the financial support of the Government of Canada.

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## INTRODUCTION

The Emergency Sturgeon Live Release Boat Kit Program (BKP) was piloted in 2011 because the Nechako White Sturgeon Recovery Initiative (NWSRI) and Carrier Sekani Tribal Council (CSTC) had become aware that an unknown number of sturgeon were caught as by-catch in association with the First Nation Food, Social and Ceremonial (FSC) fisheries and that fisher families didn't necessarily know how to release a sturgeon safely from their gill nets. The goal:

- > To reduce accidental harm to sturgeon and the sturgeon population as a result of sturgeon by-catch associated with the First Nation gill net fisheries.

This goal addresses one of the main objectives of the Recovery Plan for Nechako White Sturgeon “Prevent extirpation of white sturgeon in each of the four identified populations by preventing net loss of reproductive potential” (SARA 2014:51), by reducing the number of sturgeon harmed or accidentally killed during the fisheries, thereby maintaining breeding adults and juveniles in the population for future breeding purposes as well as genetic variability.

The NWSRI Coordinator oversees the BKP, and the NWSRI contracts CSTC to manage the program and hire Community By-catch Monitors in each of the seven communities. The By-catch monitors communicate with the Fisher Families.

This report is the first comprehensive summary of the BKP data. It will serve to form recommendations for the coming years of this program.



LEFT: Image of the Boat Kit and the items that comprise the kit. They include: DVD, camera, gloves, twine, needles, tape, rope, knife, pencil, data sheets, measuring tape, net mending square, pliers, and in some kits a PIT tag reader.

## PROGRAM DETAILS

### Funders

The NWSRI and CSTC developed this program in 2011. Funding and in-kind support for this program has come primarily from Habitat Stewardship Program (HSP), CSTC, and the NWSRI. Other contributors over the years include Fisheries and Oceans Canada, Canfor, Mt. Milligan and Integris Credit Union. Total financial and in-kind contributions to this program since 2011 total \$180,176 (Figure 1).

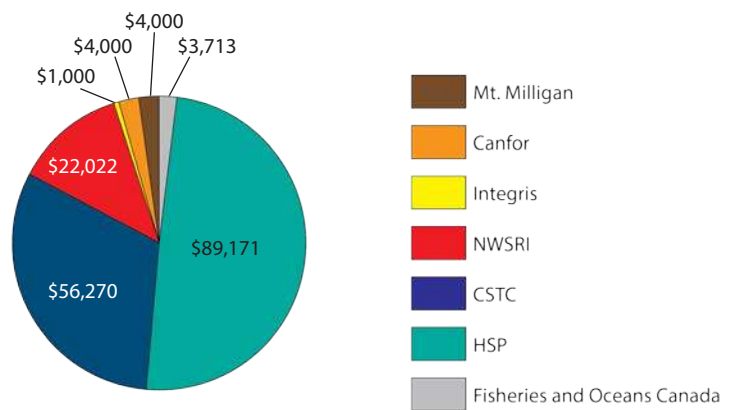


Figure 1: Breakdown of total funding contributions equaling \$180,176 for the BKP from 2011-2016.

### Resources

The BKP goal is achieved by providing the following resources to First Nation fisher families on how to release sturgeon safely from their gill nets.

- > A kit small enough to remain in the boat at all times and contain all of the tools necessary for a successful live release.
- > A video, “Every Sturgeon Counts” as an educational and training tool for Fisher Families.
- > An on-site community By-catch Monitor that can explain the program and help release sturgeon caught in a net.



## Yearly Schedule

The BKP operates on an annual basis, starting in April of each year (Table 1).

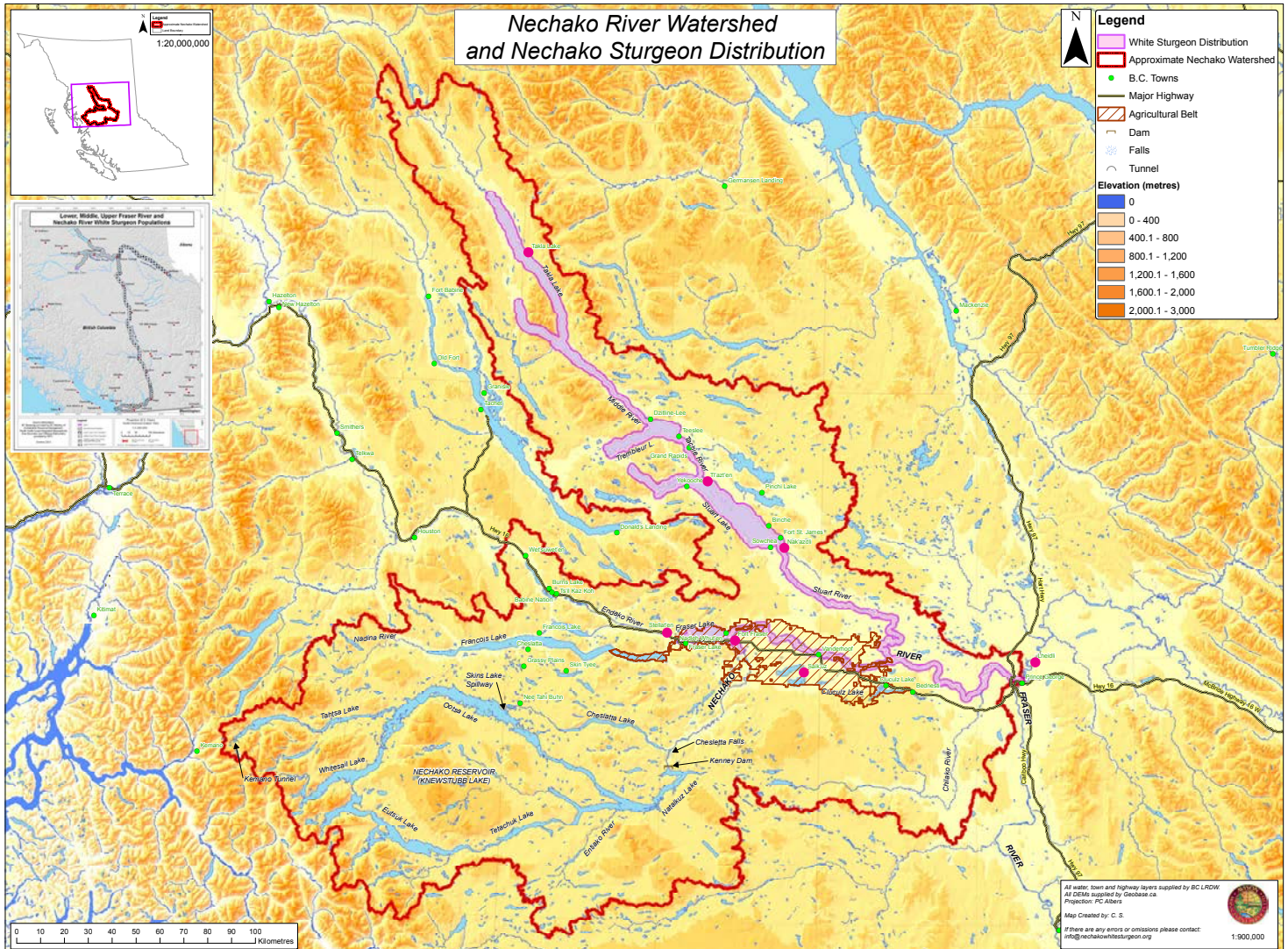
**Table 1:** Boat Kit Program yearly schedule.

Activity	Date
Hire By-Catch Monitors	April
Identify Fisher Families and distribute Kits	April-June
Data Collection & Submission	July-November
Collection of Boat Kits	November-March
Inspect & Replenish Boat Kits	March
Report to Funders	April

## First Nation Communities

Seven First Nation Communities; Nadleh Whut'en, Stelat'en, Saik'uz, Nak'azdli, Tl'azt'en, Takla and Lheidli T'enneh, are approached each year to participate in this program. Figure 2 shows the location of the First Nation communities and the distribution of Nechako white sturgeon.

The By-catch Monitors distribute kits to the families, and assist with removal and data collection.



**Figure 2:** Distribution of Nechako white sturgeon, and the location of the seven First Nation communities (pink dots).

## The Fisheries

There are two main fisheries over the three time periods in the year in our region - salmon and char/lingcod. The BKP focuses primarily on the salmon fishery, which occurs during the summer and early fall (July-September). The char and lingcod fishery takes place both in the spring (March-May) and the fall (September-October). Lake and river gill netting is used in these fisheries (Table 2).

**Table 2:** Locations where each of the First Nation communities fish.

First Nation Community	Char/Lingcod Mar-May	Salmon Jul-Sept	Char/Lingcod Sept-Oct
Nadleh Whu'ten	Fraser Lake	Fraser Lake	Fraser Lake
Stellat'en	Fraser Lake	Fraser Lake	Fraser Lake
Saik'uz	Nechako River	Nechako River	Nechako River
Nak'azdli	Stuart Lake	Stuart Lake	Stuart Lake
Tl'azt'en	Stuart Lake	Stuart Lake	Stuart Lake
Takla	Takla Lake	Takla Lake August	Takla Lake
Lheidli T'enneh	Fraser River	Fraser River August	Fraser River

## RESULTS

### First Nation Participation

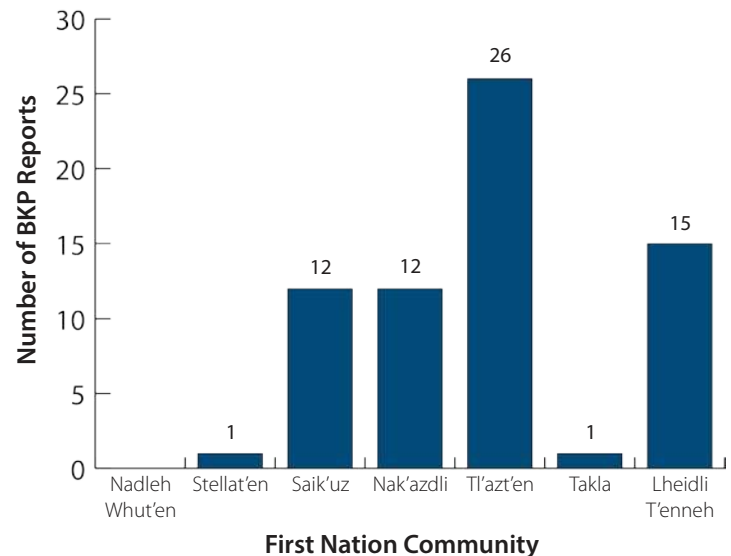
Six of the seven First Nation Communities have participated on a semi-consistent basis since the beginning of the BKP (Table 3). Nadleh Whu'ten has not participated in the program. Tl'azt'en has participated in each year of the program, and has also submitted the most number of reports (Figure 3).

**Table 3:** Number of kits distributed to First Nation communities in each of the years of the BKP. Note: 2015 information is incomplete.

First Nation Community	2011	2012	2013	2014	2015	2016
Nadleh Whu'ten	0	0	0	0	0	0
Stellat'en	0	0	2	2	-	2
Saik'uz	0	3	3	0	1	1
Nak'azdli	0	1	8	5	-	0
Tl'azt'en	5	6	7	5	-	3
Takla	0	4	0	5	0	0
Lheidli T'enneh	0	0	4	2	3	0



**LEFT:** Adult sturgeon found dead and washed up on shore of Stuart Lake in 2014. The cause of death was not determined. There was no evidence of any tags or markings from the brood capture program.



**Figure 3:** Number of reports submitted to BKP per First Nation community from 2011-2016.



## Sturgeon Releases

From 2011-2016, a total of 65 sturgeon were caught as by-catch in the FSC Fishery. Of those, 58 sturgeon were released live, and seven died in gill nets (Figure 4).

The majority of sturgeon caught in the FSC Fishery have been in Stuart Lake (Figure 5) by the Tl'azt'en and Nak'azdli First Nations. Specific locations that were reported for each of the major water bodies include:

**FRASER LAKE:** Mouth of Stellako River

**NECHAKO RIVER:** Wedgewood

**STUART LAKE:** Tachie, Thomas Point, Sowchea Creek

**FRASER RIVER:** Stone Creek, Ft. George, Downstream of Northwood Bridge, Ft. George Canyon

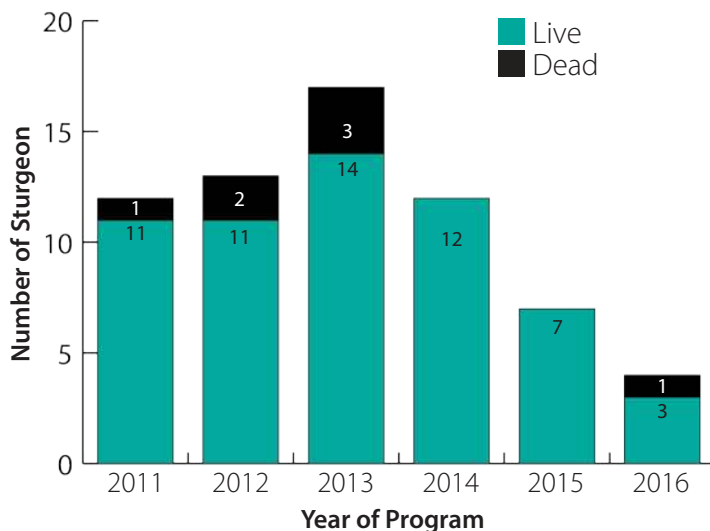


Figure 4: Number of live and dead releases per year.

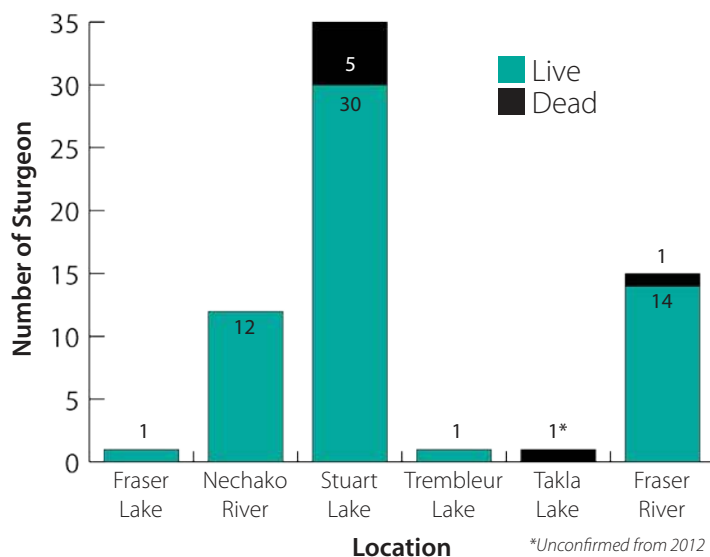


Figure 5: Number of live and dead releases by location.

## Sturgeon Characteristics

Approximate length data was recorded for 51 of the sturgeon reported between 2011 and 2016 (Figure 6). The largest sturgeon caught was recorded as longer than 3.2m in length (Stuart Lake, 2014). The smallest sturgeon caught was roughly 0.30m in length (Stuart Lake, 2016).

Three of the 11 juvenile sturgeon (< 1 m) died in the gill nets. Of the remaining 40 sturgeon, all 12 sub-adults (1-1.5 m) were released live. Of the 28 spawning age sturgeon, two of 15 adults sized 1.5-2 m died in the nets, and all 13 sturgeon over 2 m in length were released successfully.

Table 7 shows the length distribution by location. Fish less than 1 m in length were only caught in Stuart Lake and the Fraser River.

PIT tag readers were only used in five encounters, and only one of those sturgeon had a PIT tag (# 424D3B7366, 2011, Nechako River).

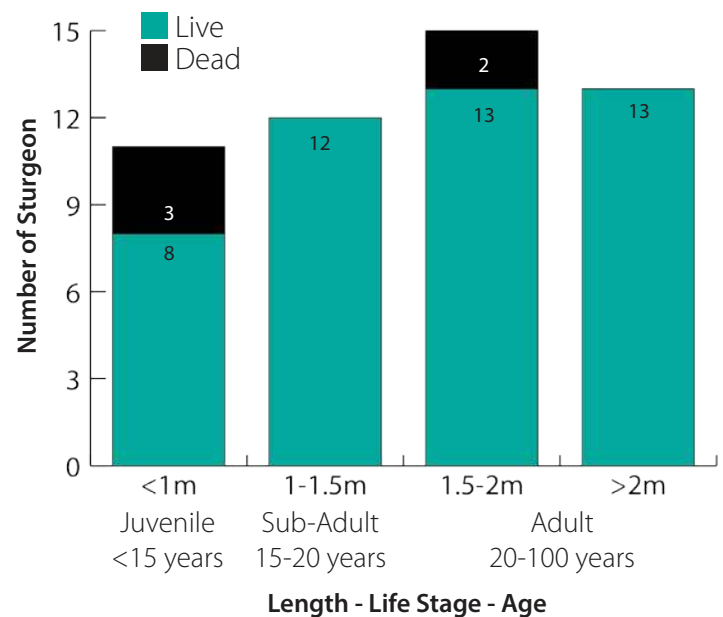
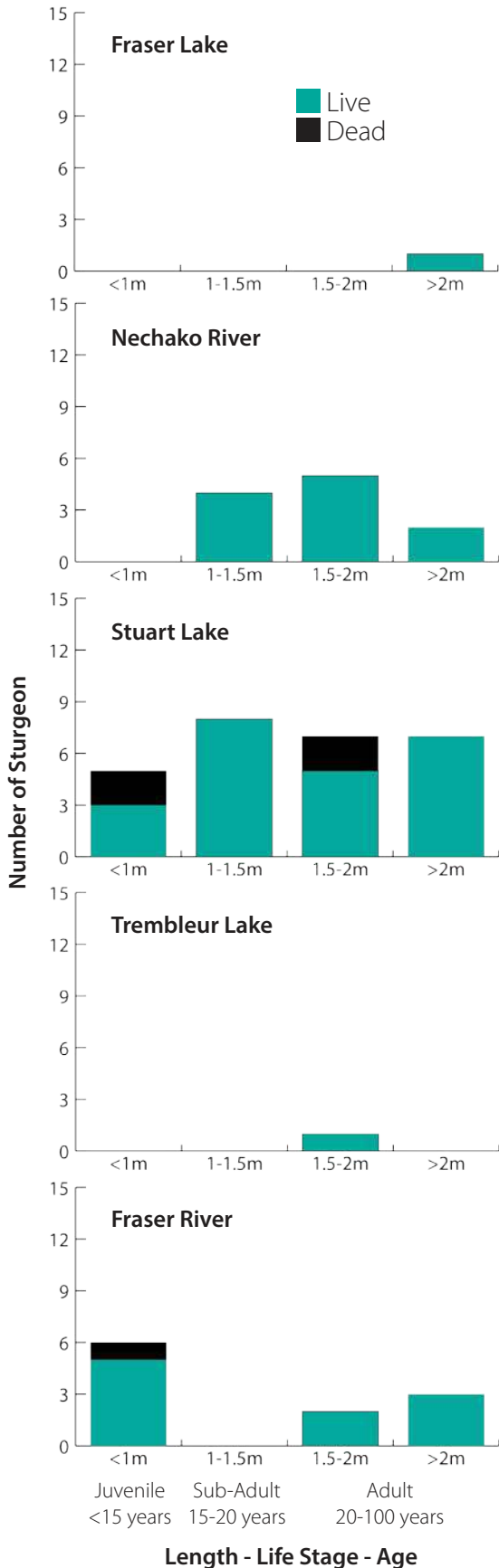


Figure 6: Length histogram of sturgeon caught, based on 51 fish. Based on other research, sturgeon <1m = <15 year old (juveniles); 1-1.5m = 15-20 years old (sub adult, non-spawner); 1.5-2m = 20-40 years old (adult); >2m = 40-100 years old (adults).



Four sturgeon had radio-transmitter tags, however it was not possible to record the frequency:

- > Sept. 6, 2011 - Nechako River, 2.1m, 1R Scute
- > Sept. 11, 2011 - Nechako River, 1.1m, 1R & Lpec
- > Sept. 8, 2013 - Stuart Lake, 0.76m
- > Sept. 14, 2016 - Stuart Lake, 1.3m

### Sturgeon per Fishery

Fifty-seven of the 58 sturgeon recorded in the BKP were caught between July and September during the salmon fishery. The one other sturgeon was caught in April 2013 in Stuart Lake during the char/lingcod fishery. It was not alive when encountered. The report stated that the net had been left for 2.5 days. Set time is not a data field on the BKP data sheet.

It should be noted that outside the BKP program, there have been two reports of sturgeon loss (not included in the data analysis). The first was a sturgeon found dead and washed up on the shore of Stuart Lake in 2014. The cause of death was not confirmed. The second was in 2016 during the spawn monitoring program. A 2m sturgeon ended up in a fyke net, used to sample for larval sturgeon, and died in the net.

### Injuries to Fish and Nets

There was one report of a sturgeon caught in a seine net (mouth of Stellako River in Fraser Lake). The rest of the records were from gill nets.

Of the 33 reports that had the injury portion of the data sheet completed, 64% recorded the sturgeon were tangled in the net, 21% were tangled and rolled in the net, 12% rolled only, and 3% (1 sturgeon) was trapped in a seine net.

Of the sturgeon that were released live, Fishers reported most often that it was easy to release the sturgeon. Two described that it was difficult, and another reported that the net was destroyed as the sturgeon needed to be cut free. Five reports stated the sturgeon escaped. There was no clear association between how the sturgeon were caught in the net and their ease of removal.

Figure 7: Length histogram of sturgeon in each of the major locations, based on 51 fish. Life stage and age assumed from length.

Of those reported, the majority of nets received either no damage (13 nets) or only minor damage (16 nets). The remaining were either moderate (1 net), major damage (4 nets), or destroyed (1 net).

Almost all the of reports stated that sturgeon looked healthy and most swam away easily. Less than 10% of the reports stated that the Fishers had to revive or help the sturgeon as the fish were showing signs of distress (lethargic). Fewer reports noted that sturgeon were left with marks from the nets.

## SUMMARY

Since 2011, 58 sturgeon have been released live. Fourty (40) of those were over 1 m in length with 28 of spawning size. Based on the most recent adult population estimate in the Nechako River of 545 individuals (TWG 2017-02-20 Minutes), the live releases account for roughly 7.5% of the adult sturgeon in the population. This value shows that the Emergency Boat Kit Program has been successful in its goal of reducing harm to the endangered Nechako white sturgeon.

Almost all the data comes from the salmon fishery, which was the main focus of the BKP. Although Fisher Families still have access to the kits during the char/lingcod fisheries, the data is limited. It is unclear if the number of captures is low due to the time of the fishery or if the boat kits are not being utilized.

It is clear from the data that there is inconsistency in the level of participation among First Nation communities within and between years. In an effort to further reduce harm, effort should be made to increase participation in this valuable program.

## RECOMMENDATIONS

Looking forward to the coming years, possible improvements or next steps to the BKP could include:

- > Determine why there isn't 100% participation in the BKP each year by First Nation communities. Develop strategies/incentives to engage all communities each year.
- > Review the Boat Kit contents and remove/add items as needed, including incentives to Fisher Families themselves for participation.
- > Develop method to have PIT tag readers available to Fisher Families to gather individual IDs, especially since hatchery fish will become susceptible to the gill net fishery in the coming years.
- > Update/improve data sheet to be easier to complete fully in the field.
- > Add data fields such as fishing effort, set-length etc. to gather other useful data points to help build strategies to continue to reduce harm.
- > Investigate methods to reduce the risk of harm to juvenile sturgeon in gill nets, as they seem more likely to be harmed if caught.
- > Concentrate new effort to cover the char/lingcod fisheries.