



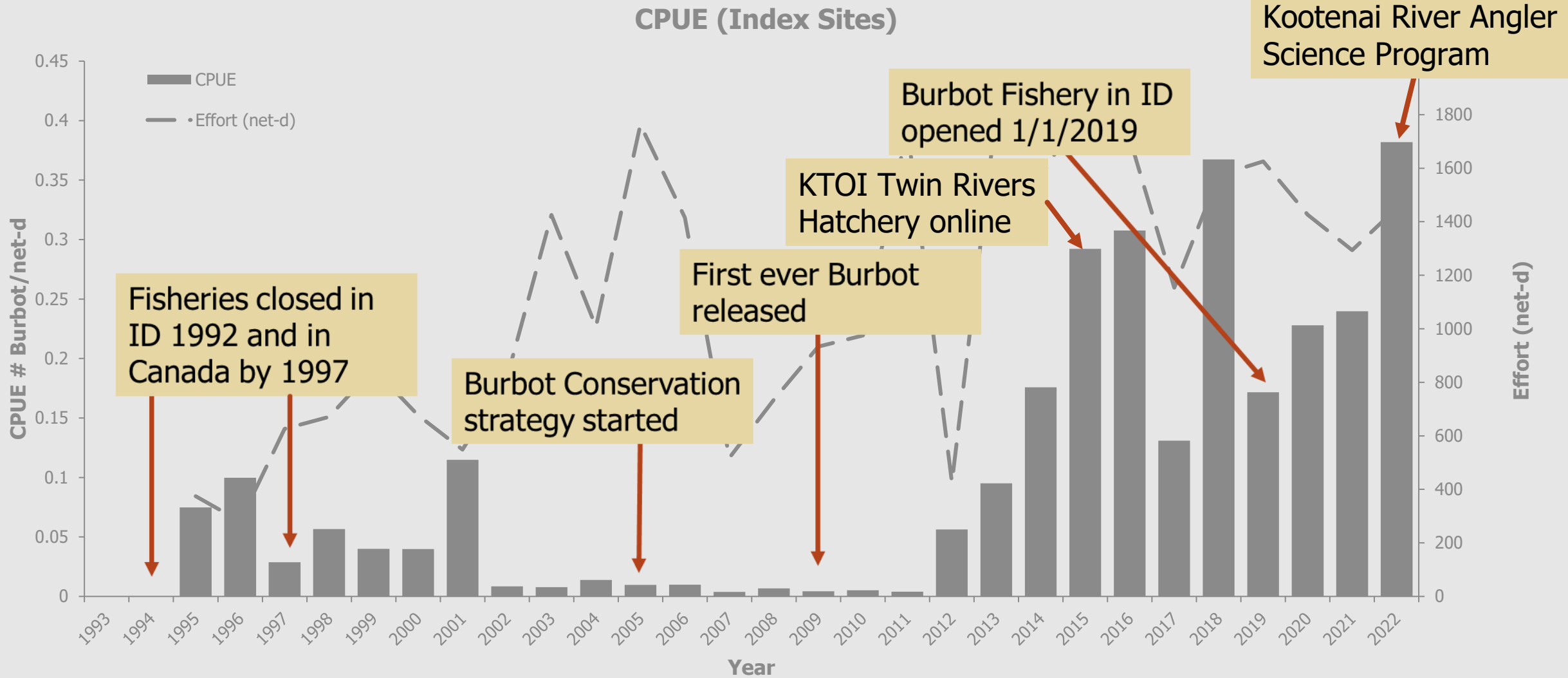
# Kootenai Valley Resource Initiative

Aaron Black

3.20.2023

Idaho Department of Fish and Game

# How we monitor

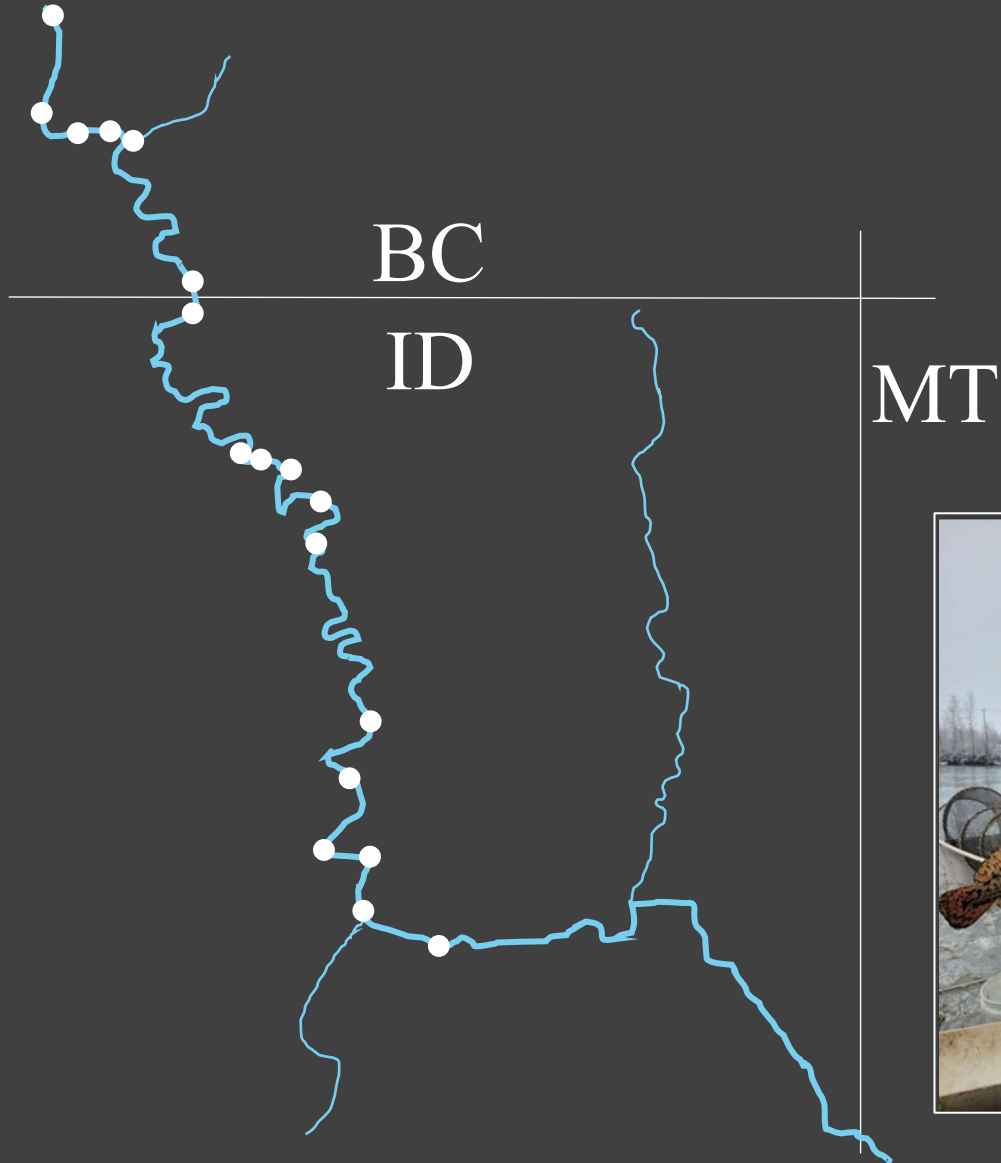


# How we monitor

- ◇ Hoopnets
- ◇ PIT tags
- ◇ Genetics
- ◇ Anglers
- ◇ eDNA



# Hoopnets



## Dec-March

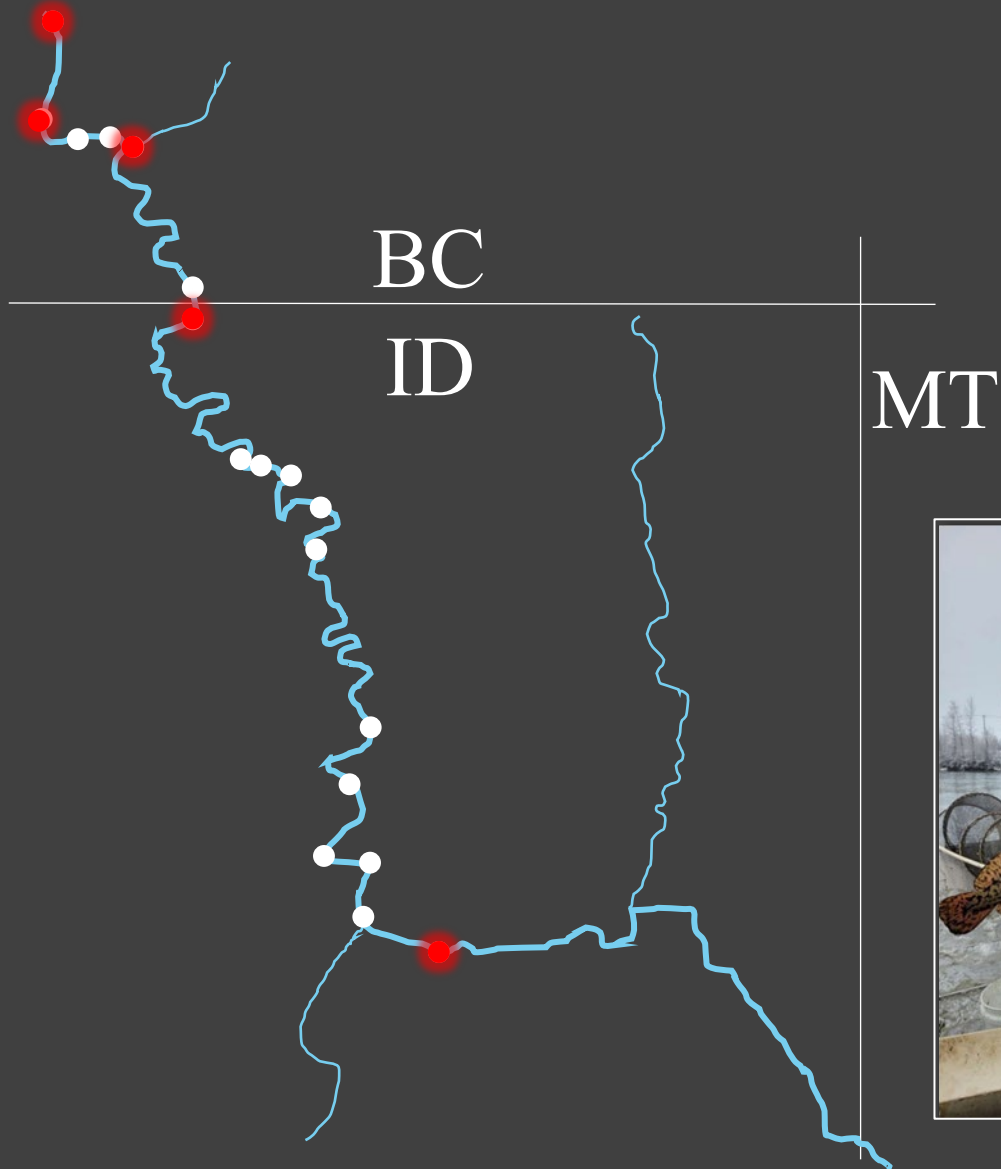
- Hoop nets: 60cm x 2m
- 18 sites, 42 total hoop nets
- 6.4 and 19.1mm mesh size (paired sets at each site)
- No deep net sets (to avoid barotrauma)

## Index Locations

- Five sites since 1994
- Monitor trend CPUE



# Hoopnets



## Dec-March

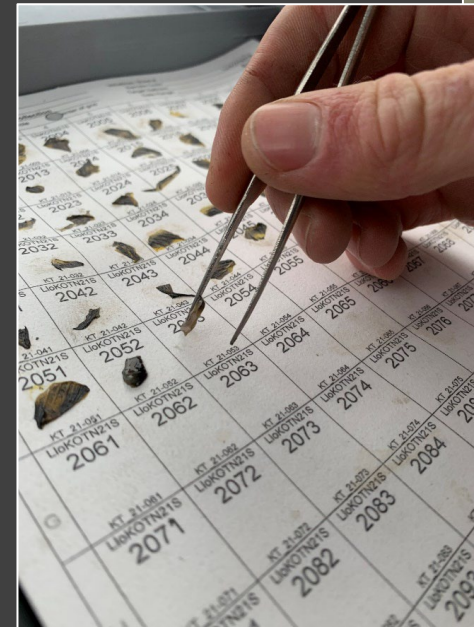
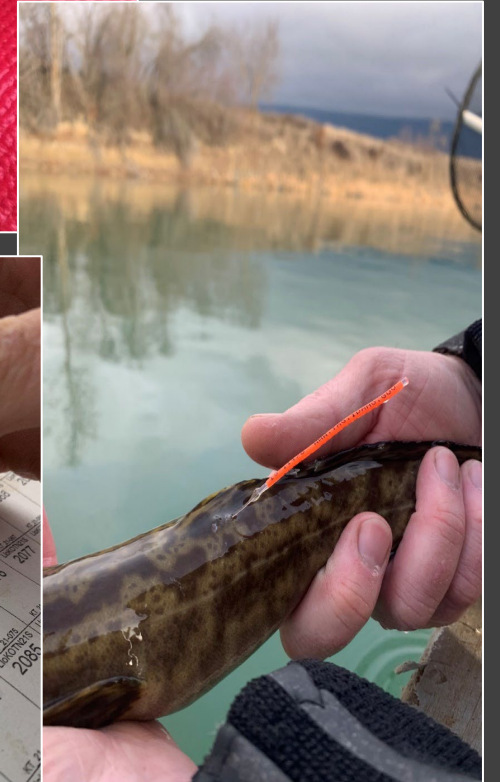
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## Index Locations

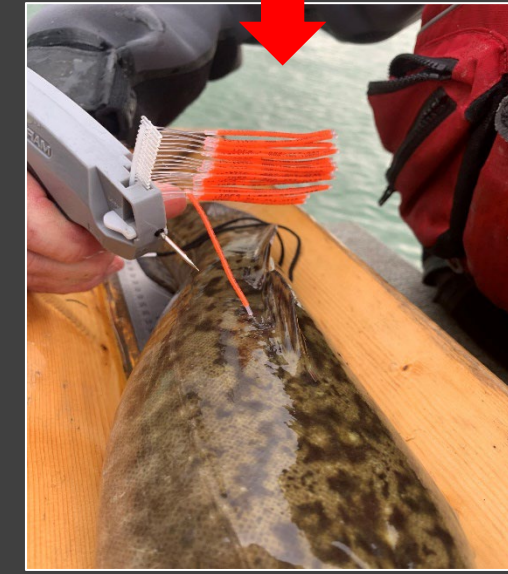
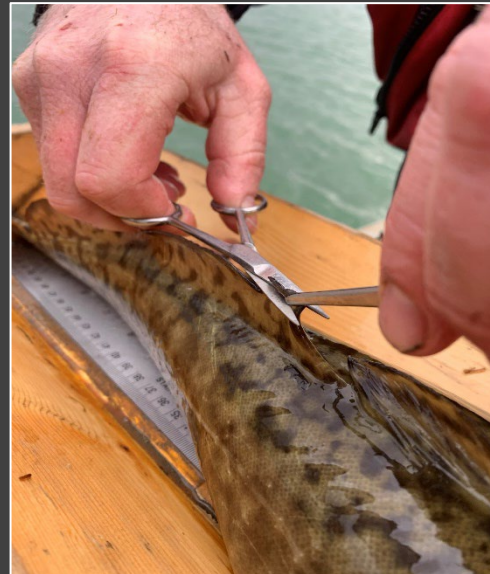
- Five sites since 1994
- Monitor trend CPUE

# Work up

- ◇ PIT tag
- ◇ Floy tag
- ◇ Acoustic tag
- ◇ Genetic clip
- ◇ Parentage-Based Tagging

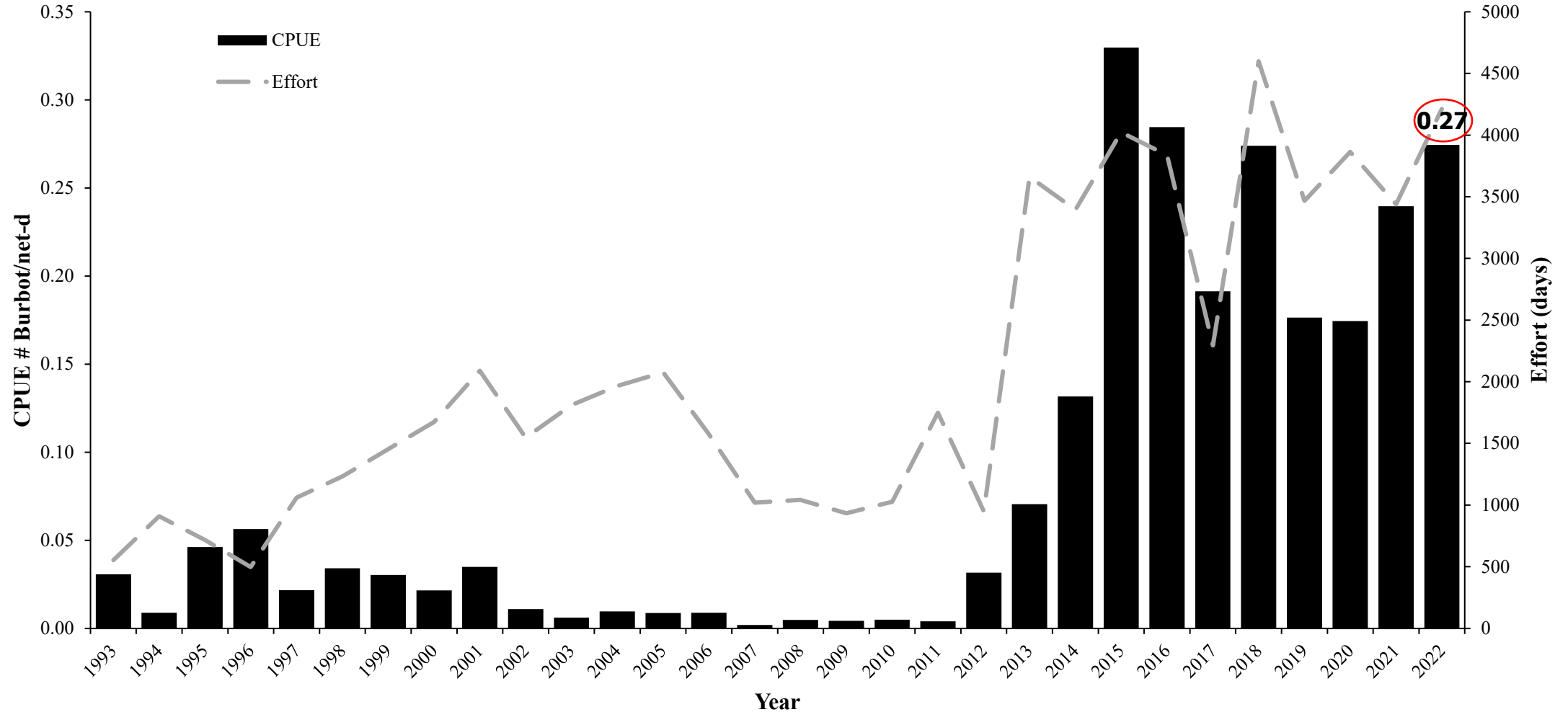


# Work up



# Catch Rates

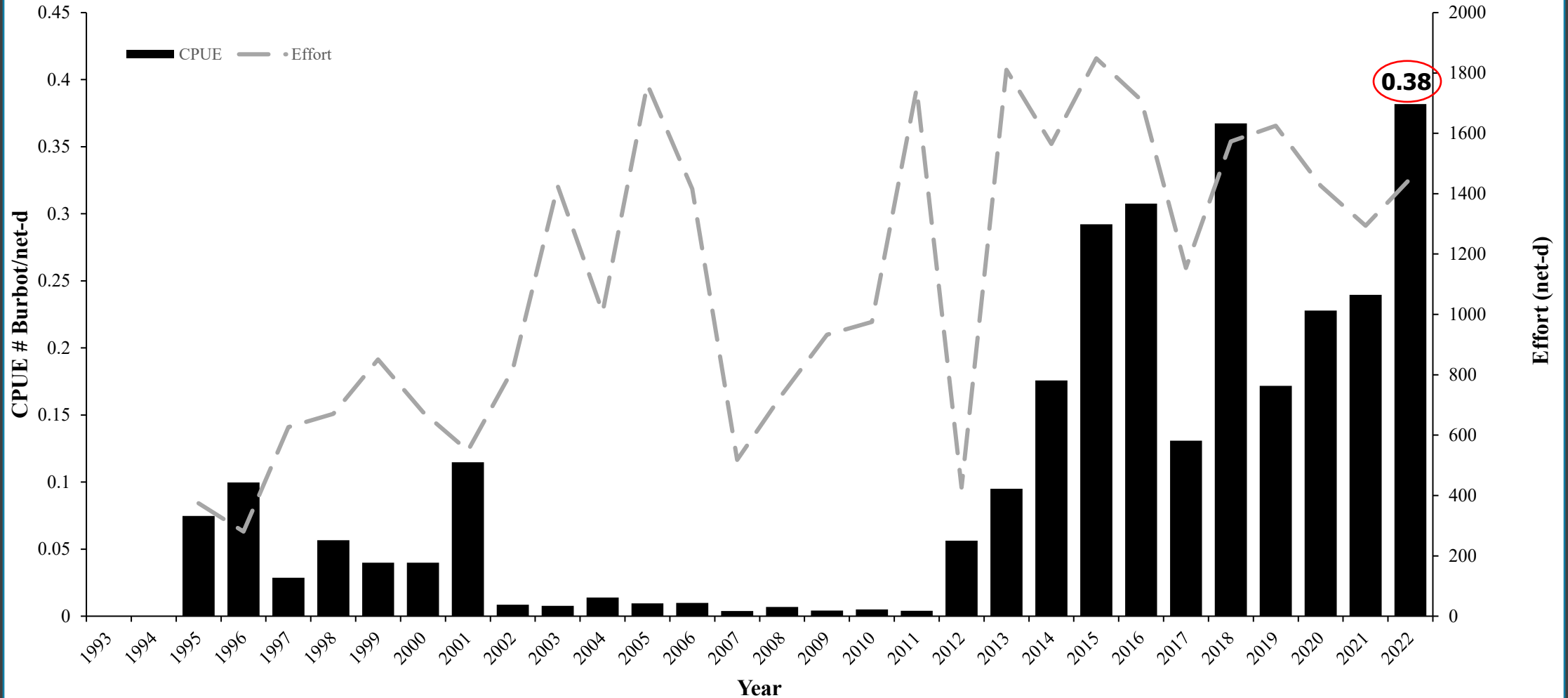
CPUE (All Sites)





# Catch Rates

CPUE (Index Sites)



# PBT

- ◆ Parentage Based Tagging
- ◆ Passive tagging
- ◆ Powerful tool

Collecting Agency: \_\_\_\_\_ Whatman Sheet #: (Lab entry only)

Collecting Person: \_\_\_\_\_ Sample Code: \_\_\_\_\_ LioKOTN23S

Location: **Kootenai River (broodstock collection)** Target Species: **Burbot**

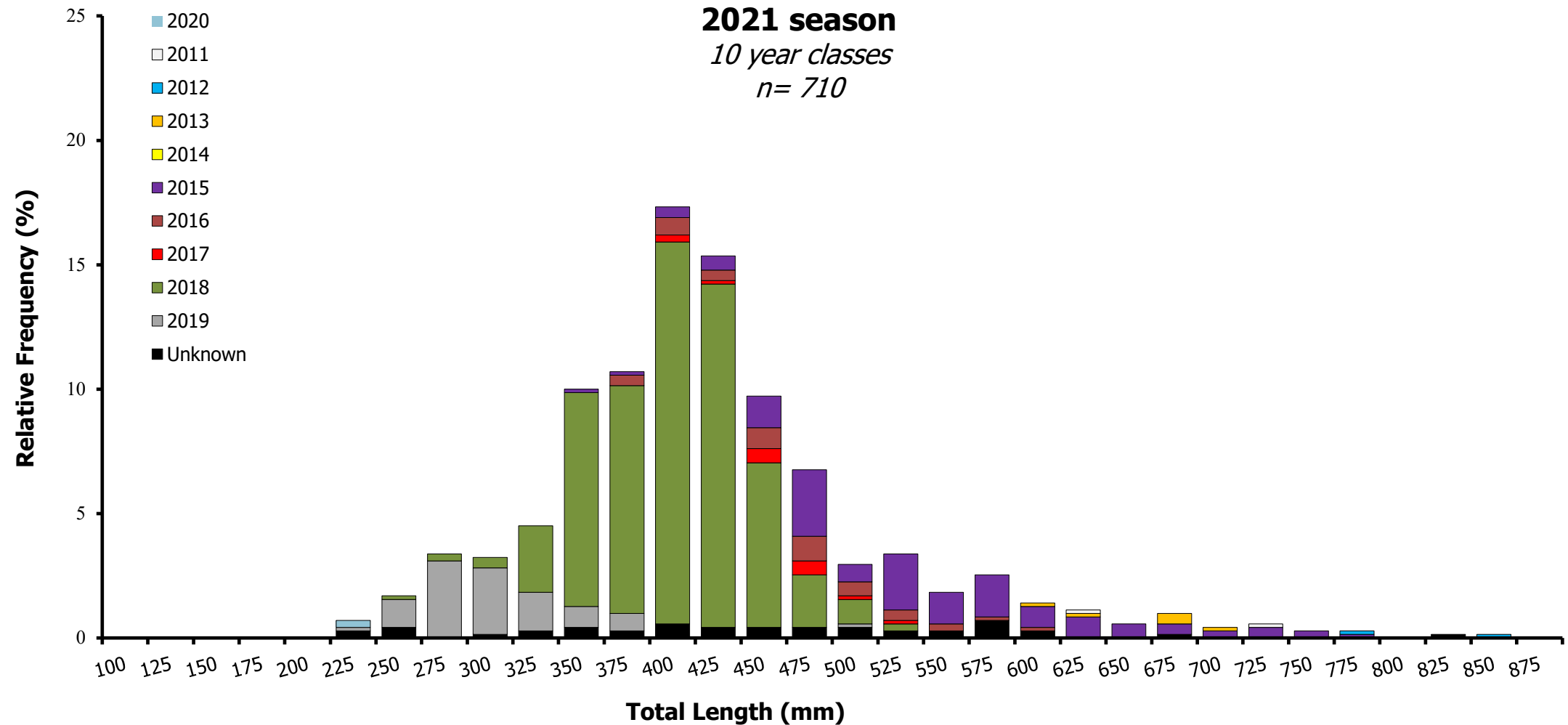
Place a piece of fin tissue, not larger than this circle  Center of grid Date Range: \_\_\_\_\_

	1	2	3	4	5	6	7	8	9	10
A	LioKOTN23S 0001	LioKOTN23S 0002	LioKOTN23S 0003	LioKOTN23S 0004	LioKOTN23S 0005	LioKOTN23S 0006	LioKOTN23S 0007	LioKOTN23S 0008	LioKOTN23S 0009	LioKOTN23S 0010
	KT 23-001	KT 23-002	KT 23-003	KT 23-004	KT 23-005	KT 23-006	KT 23-007	KT 23-008	KT 23-009	KT 23-010
B	LioKOTN23S 0011	LioKOTN23S 0012	LioKOTN23S 0013	LioKOTN23S 0014	LioKOTN23S 0015	LioKOTN23S 0016	LioKOTN23S 0017	LioKOTN23S 0018	LioKOTN23S 0019	LioKOTN23S 0020
	KT 23-011	KT 23-012	KT 23-013	KT 23-014	KT 23-015	KT 23-016	KT 23-017	KT 23-018	KT 23-019	KT 23-020
C	LioKOTN23S 0021	LioKOTN23S 0022	LioKOTN23S 0023	LioKOTN23S 0024	LioKOTN23S 0025	LioKOTN23S 0026	LioKOTN23S 0027	LioKOTN23S 0028	LioKOTN23S 0029	LioKOTN23S 0030
	KT 23-021	KT 23-022	KT 23-023	KT 23-024	KT 23-025	KT 23-026	KT 23-027	KT 23-028	KT 23-029	KT 23-030
D	LioKOTN23S 0031	LioKOTN23S 0032	LioKOTN23S 0033	LioKOTN23S 0034	LioKOTN23S 0035	LioKOTN23S 0036	LioKOTN23S 0037	LioKOTN23S 0038	LioKOTN23S 0039	LioKOTN23S 0040
	KT 23-031	KT 23-032	KT 23-033	KT 23-034	KT 23-035	KT 23-036	KT 23-037	KT 23-038	KT 23-039	KT 23-040
E	LioKOTN23S 0041	LioKOTN23S 0042	LioKOTN23S 0043	LioKOTN23S 0044	LioKOTN23S 0045	LioKOTN23S 0046	LioKOTN23S 0047	LioKOTN23S 0048	LioKOTN23S 0049	LioKOTN23S 0050
	KT 23-041	KT 23-042	KT 23-043	KT 23-044	KT 23-045	KT 23-046	KT 23-047	KT 23-048	KT 23-049	KT 23-050
F	LioKOTN23S 0051	LioKOTN23S 0052	LioKOTN23S 0053	LioKOTN23S 0054	LioKOTN23S 0055	LioKOTN23S 0056	LioKOTN23S 0057	LioKOTN23S 0058	LioKOTN23S 0059	LioKOTN23S 0060
	KT 23-051	KT 23-052	KT 23-053	KT 23-054	KT 23-055	KT 23-056	KT 23-057	KT 23-058	KT 23-059	KT 23-060
G	LioKOTN23S 0061	LioKOTN23S 0062	LioKOTN23S 0063	LioKOTN23S 0064	LioKOTN23S 0065	LioKOTN23S 0066	LioKOTN23S 0067	LioKOTN23S 0068	LioKOTN23S 0069	LioKOTN23S 0070
	KT 23-061	KT 23-062	KT 23-063	KT 23-064	KT 23-065	KT 23-066	KT 23-067	KT 23-068	KT 23-069	KT 23-070
H	LioKOTN23S 0071	LioKOTN23S 0072	LioKOTN23S 0073	LioKOTN23S 0074	LioKOTN23S 0075	LioKOTN23S 0076	LioKOTN23S 0077	LioKOTN23S 0078	LioKOTN23S 0079	LioKOTN23S 0080
	KT 23-071	KT 23-072	KT 23-073	KT 23-074	KT 23-075	KT 23-076	KT 23-077	KT 23-078	KT 23-079	KT 23-080
I	LioKOTN23S 0081	LioKOTN23S 0082	LioKOTN23S 0083	LioKOTN23S 0084	LioKOTN23S 0085	LioKOTN23S 0086	LioKOTN23S 0087	LioKOTN23S 0088	LioKOTN23S 0089	LioKOTN23S 0090
	KT 23-081	KT 23-082	KT 23-083	KT 23-084	KT 23-085	KT 23-086	KT 23-087	KT 23-088	KT 23-089	KT 23-090
J	LioKOTN23S 0091	LioKOTN23S 0092	LioKOTN23S 0093	LioKOTN23S 0094	LioKOTN23S 0095	LioKOTN23S 0096	LioKOTN23S 0097	LioKOTN23S 0098	LioKOTN23S 0099	LioKOTN23S 0100
	KT 23-091	KT 23-092	KT 23-093	KT 23-094	KT 23-095	KT 23-096	KT 23-097	KT 23-098	KT 23-099	KT 23-100

Eagle Fish Genetics Lab DNA Blotting Sheet  
Jesse McCane 208-939-6713 x2.6 jesse.mccane@idfg.idaho.gov  
Matt Campbell 208-939-6713 x2.6 kristin.wright@idfg.idaho.gov



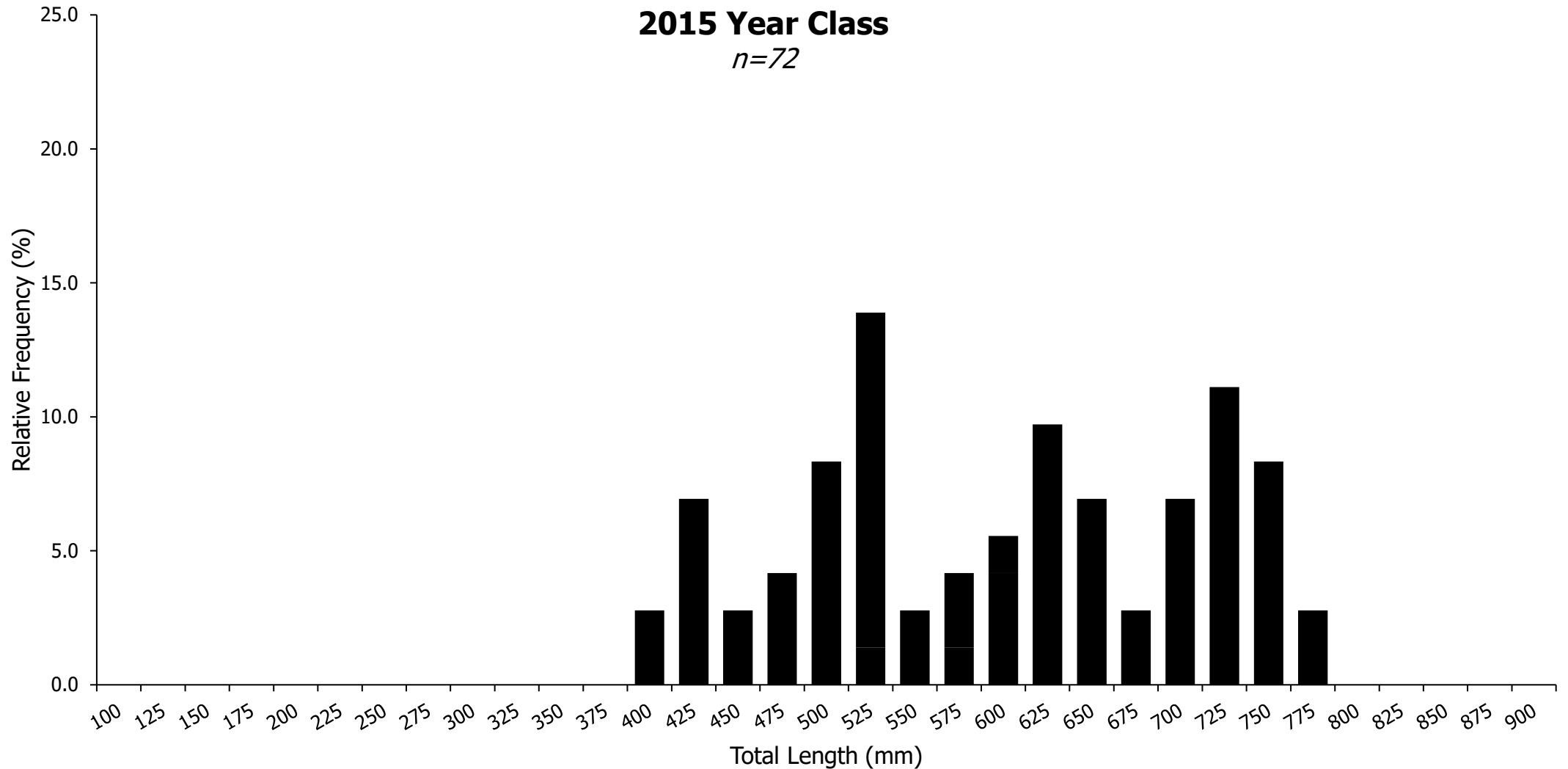
# Length Frequency



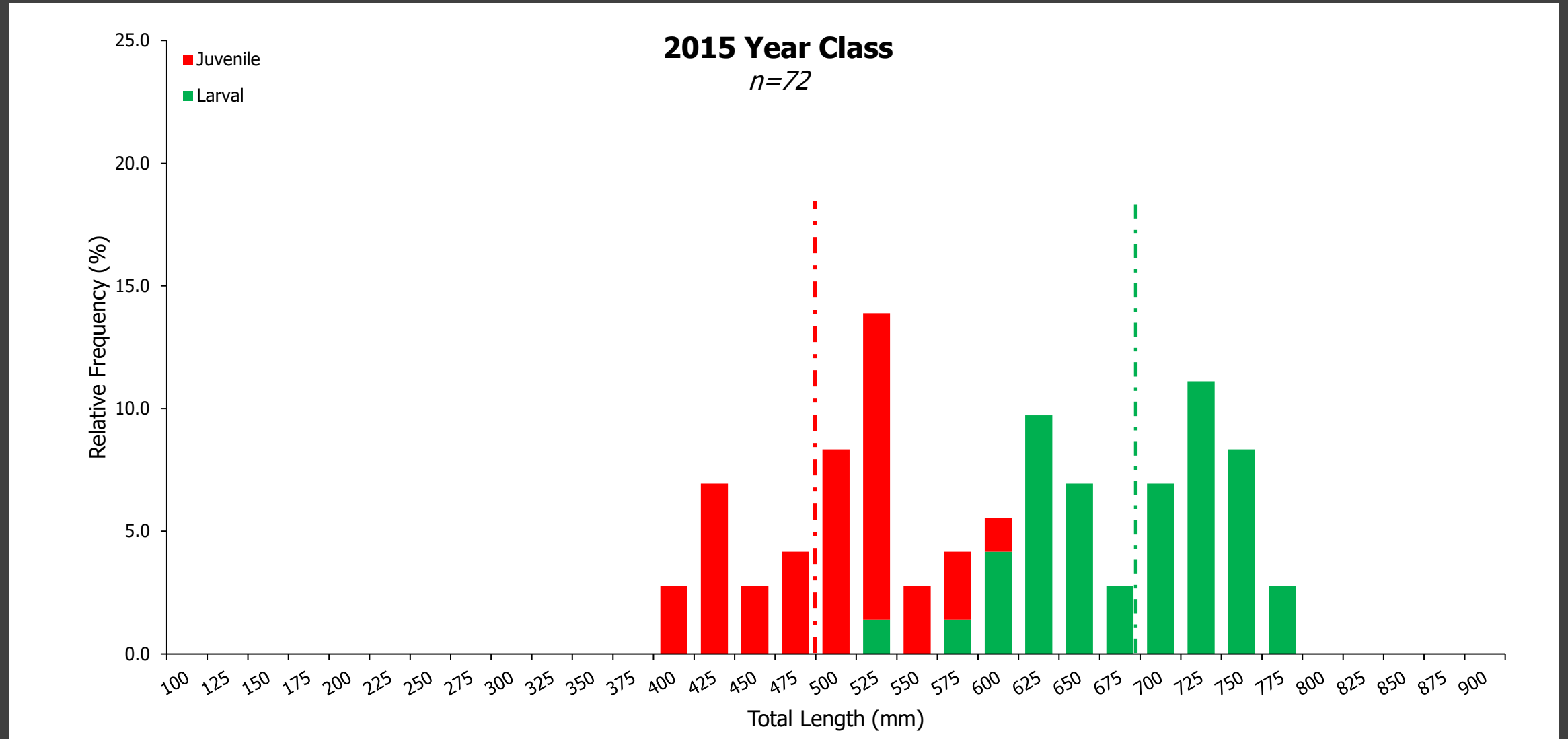


# Catch Rates

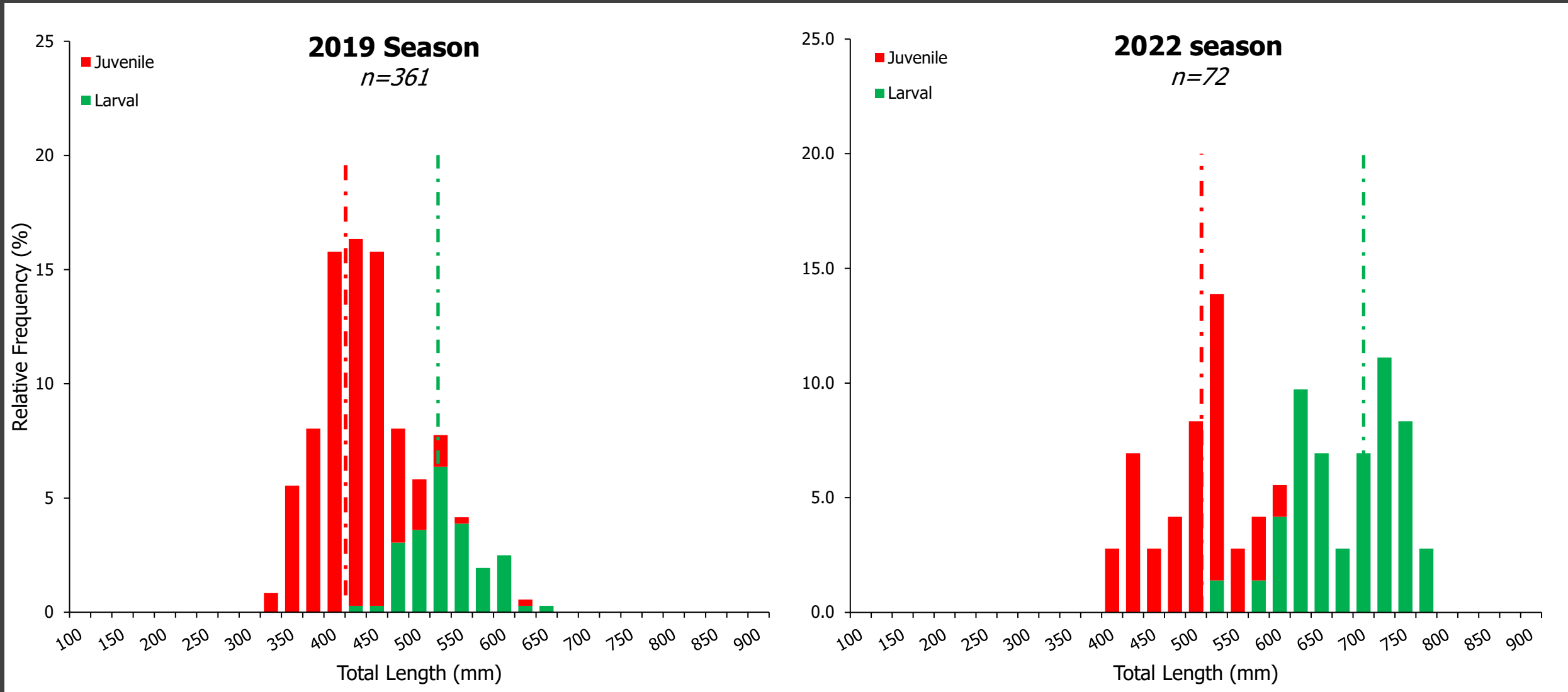
**2015 Year Class**  
*n=72*



# PBT Results- Release location

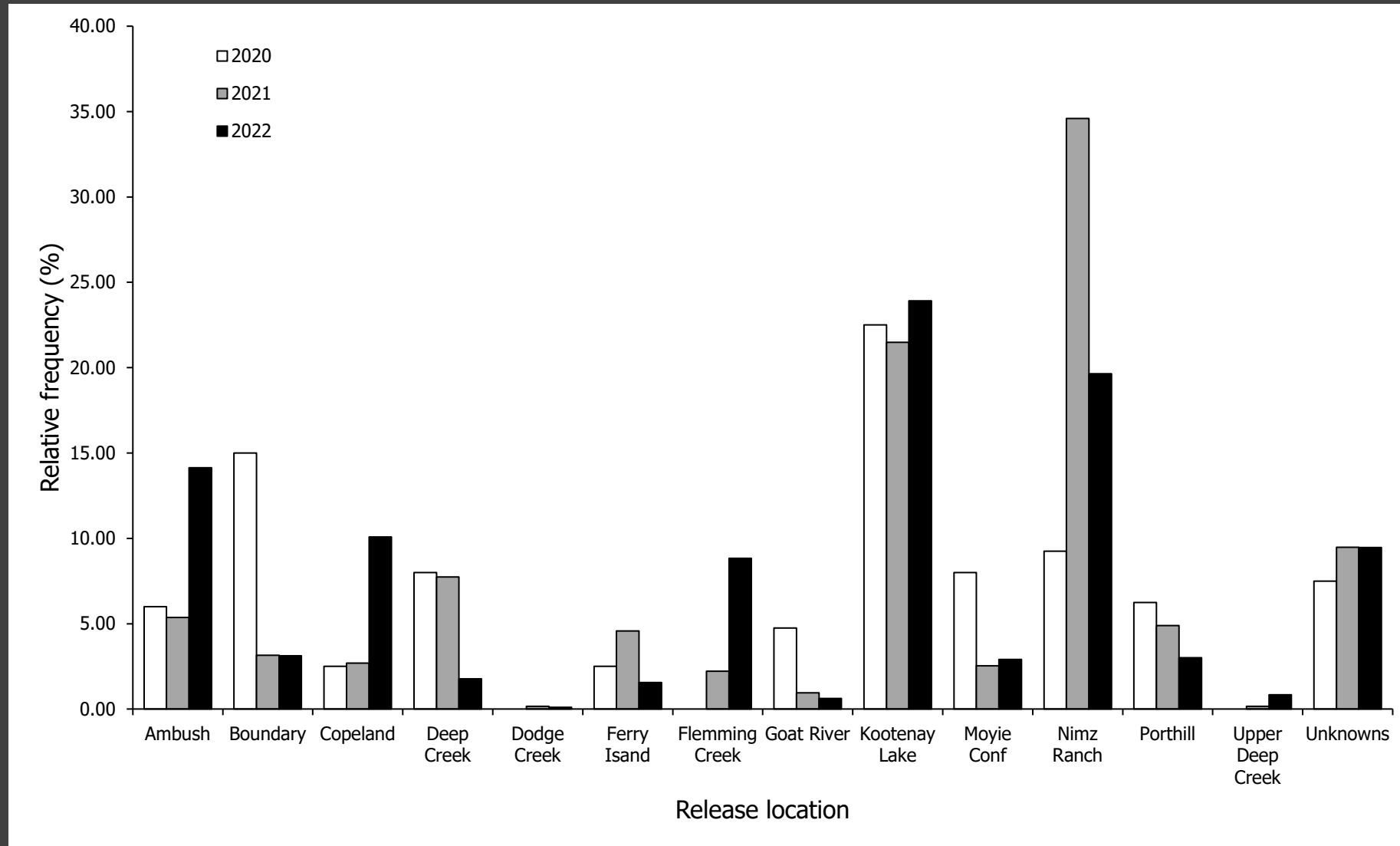


# PBT Results- Release location

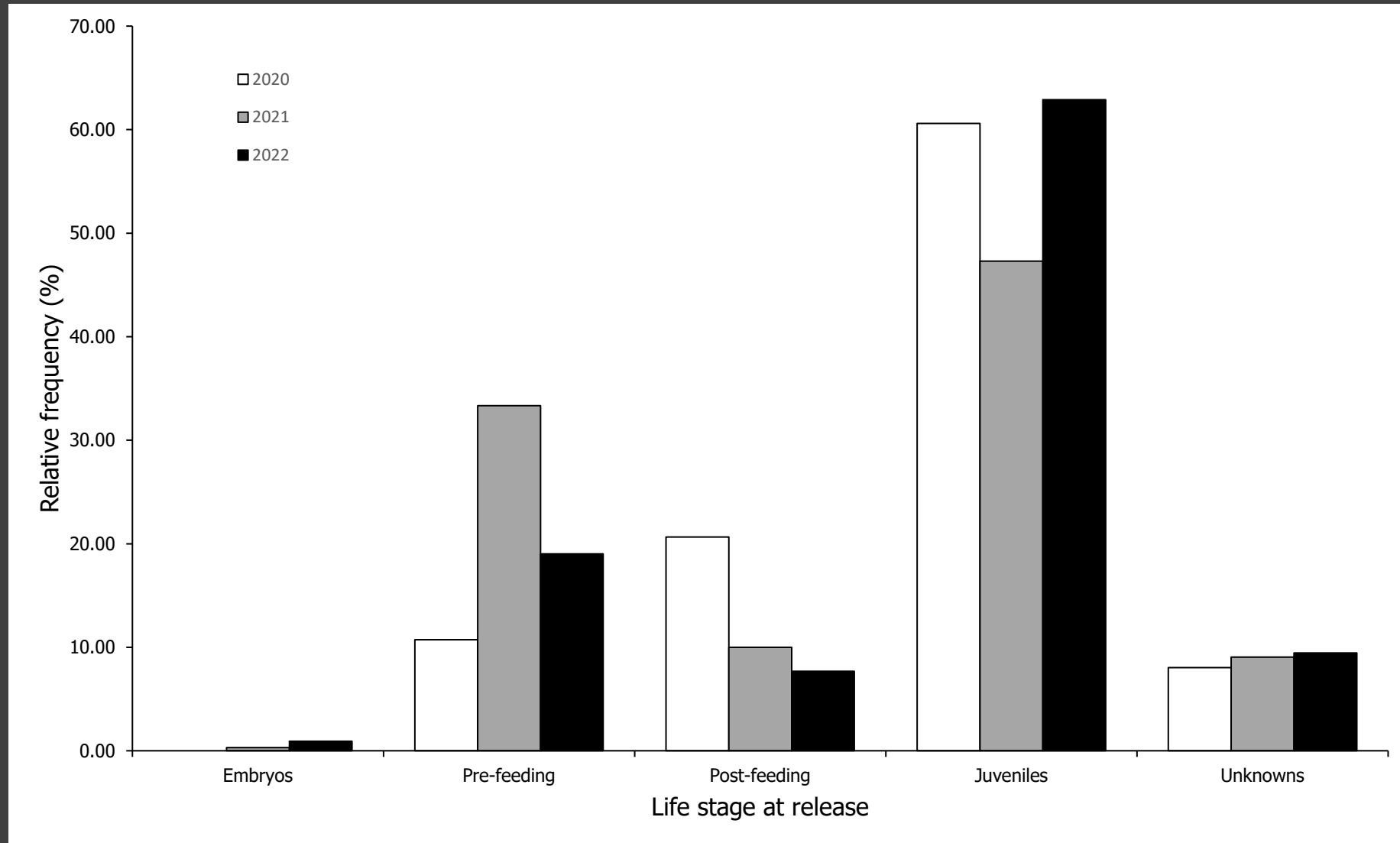




# PBT Results- Release location

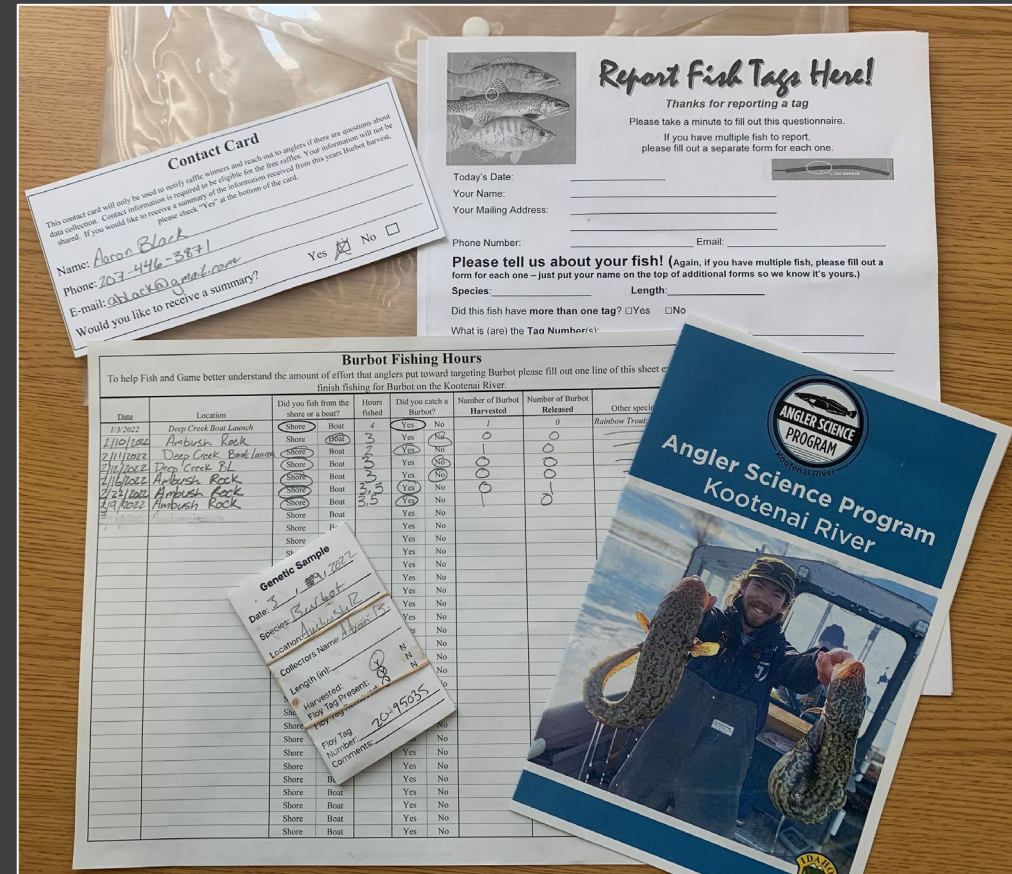


# PBT Results- Release location



# Angler Science Program

- Passive creel survey
  - Additional samples
  - Angler interactions



# Angler Science Program



### A few important things to note:

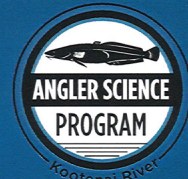
- **Reward tags must be turned in to receive the reward value on the tag.**
- Place the fin clip in the folded piece of paper in the sample envelope. The fin clip should be small enough to fit inside this circle: ○
- If fishing in a group, you must complete your own packet and logbook to be eligible for prizes.
- You must complete a contact card **and** logbook; you do not have to catch a burbot but you need to spend time fishing to be eligible for prizes.
- Additional genetic sample envelopes may be picked up from distributor locations.
- Many burbot have a small tag (PIT tag) in their filet meat (see diagram). If you harvest a fish and can recover the PIT tag, please place it in the envelope with the genetic clip.
- Many burbot have a 3-4" visible plastic tag (floy tag) in their back. The tag has a unique number as well as a phone number to call to report the fish.

There are datasheets for reporting floy tags included in this packet. Please fill out one datasheet per fish and be sure that the floy tag number on the datasheet matches the number on the genetic sample envelope.



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Costs associated with this publication are available from IDFG in accordance with section 60-202, Idaho Code.  
Angler Science Program: Kootenai River, December 2022, GG



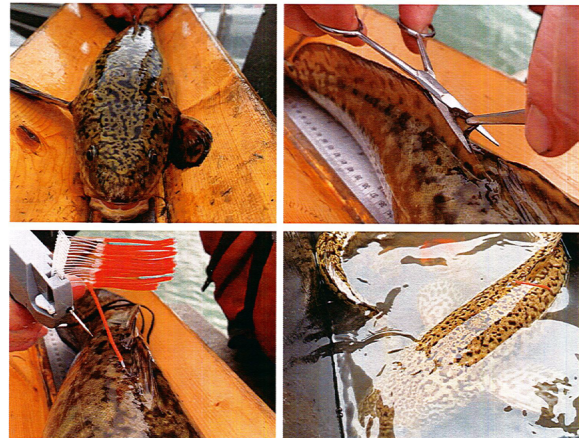
## Angler Science Program Kootenai River



Thanks for participating in the Kootenai River Angler Science Program! For several decades, a lot of time and energy have been spent by Fish and Game, the Kootenai Tribe of Idaho and others to restore burbot and provide fishing opportunity for them in the Kootenai River, and we are glad you are enjoying the fishery. Make sure to return creel packets and logbooks to a designated location by **May 1, 2023** to receive a free "Kootenai River Angler Science Program" hat to identify yourself as part of this program. Participants will also be entered in a free raffle. My contact information is below. Please don't hesitate to reach out with questions, comments, concerns or simply to talk burbot fishing - I am always up for hearing a good fishing story!

### Aaron Black

IDFG Fishery Research Biologist  
2885 W. Kathleen Avenue  
Coeur d'Alene, ID 83815  
aaron.black@idfg.idaho.gov  
(208) 770-3773 (office)



### Instructions for collecting and recording information from each fish - all information can be recorded on envelopes (see example envelope below):

The packet you received contains everything needed to collect samples from burbot you catch, regardless of size. The process for collecting samples is quite simple. Below is a picture of the sample collection envelopes in your packet, as well as a diagram showing tag and sample collection locations on the body of a burbot. If you harvest a burbot, please place any tags in the envelope with the genetic clip. If you catch and release a burbot, please record all other data and collect a genetic clip, but do not attempt to locate or remove a PIT tag.

Please return completed creel packets to one of the following locations by **May 1st, 2023**.

- ✓ Far North, Bonners Ferry
- ✓ North 40 Outfitters, Ponderay
- ✓ Fish and Game Panhandle Regional Office
- ✓ Or by mail to:

Attention: Kootenai River Creel  
2885 W. Kathleen Ave,  
Coeur d'Alene ID, 83815

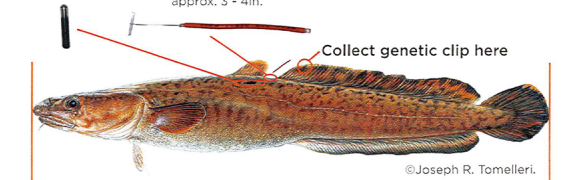


Using your smart phone, scan this QR code for instructions on sample collection.

Genetic Sample	
Date:	1/1/2023
Species:	Burbot
Location:	Copeland Boat Launch
Collector Name:	John Doe
Length (in):	16.5"
Harvested:	<input checked="" type="radio"/> Y <input type="radio"/> N
Floy Tag Present:	<input checked="" type="radio"/> Y <input type="radio"/> N
Floy Tag Removed:	<input checked="" type="radio"/> Y <input type="radio"/> N
Floy Tag Number:	xx-xxxxx
Comments:	

**PIT Tag**  
the size of a grain of rice

**Floy Tag**  
approx. 3 - 4in.



Measure length from nose to tail

©Joseph R. Tomelleri.

# Angler Science Program

**Genetic Sample**

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Species: \_\_\_\_\_

Location: \_\_\_\_\_

Collectors Name: \_\_\_\_\_

Length (in): \_\_\_\_\_

Harvested:	Y	N
Floy Tag Present:	Y	N
Floy Tag Removed:	Y	N

Floy Tag  
Number: \_\_\_\_\_

Comments: \_\_\_\_\_

# Angler Science Program

- ~ 140 packets were distributed
- 22 packets returned
- 71 fish recorded
- Overall catch rate- 0.27 Burbot/hour

**Contact Card**  
This contact card will only be used to notify you of any changes and to notify you of any changes to the program. It is not to be used for any other purpose. If you would like to be notified of any changes, please check the box below.  
Name: Dawn Black  
Phone: 202-446-3831  
Email: dawnblack@earthlink.net  
Would you like to receive a summary? Yes  No

**Report Fish Tags Here!**  
Thanks for reporting a tag.  
Please take a minute to fill out this questionnaire.  
If you have multiple fish to report, please fill out a separate form for each one.  
Today's Date: \_\_\_\_\_  
Your Name: \_\_\_\_\_  
Your Mailing Address: \_\_\_\_\_  
Phone Number: \_\_\_\_\_ Email: \_\_\_\_\_  
Please tell us about your fish! (again, if you have multiple fish, please fill out a form for each one - just put your name on the top of additional forms so we know it's yours.)  
Species: \_\_\_\_\_ Length: \_\_\_\_\_  
Did this fish have more than one tag? Yes  No   
What is (are) the Tag Number(s): \_\_\_\_\_

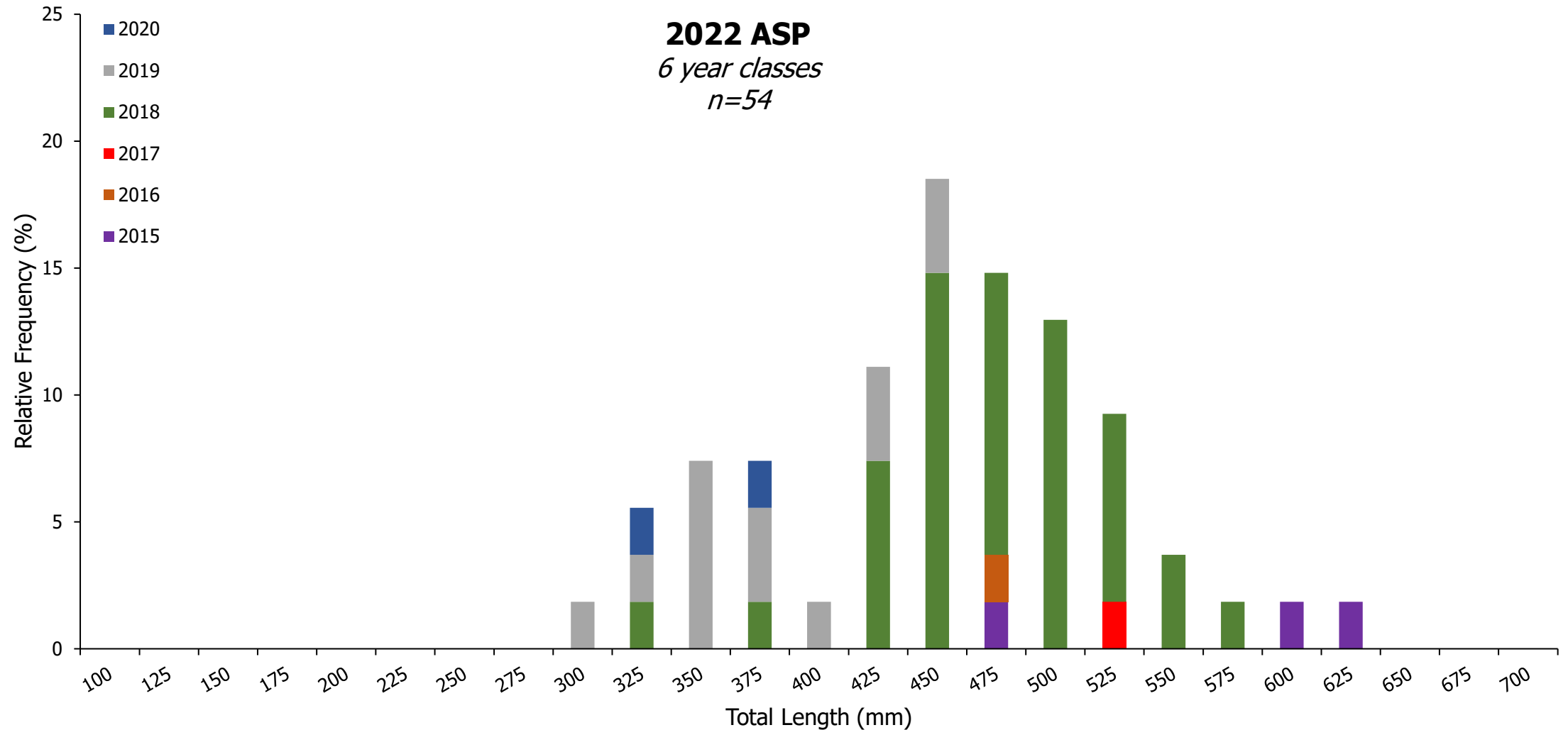
**Burbot Fishing Hours**  
To help Fish and Game better understand the amount of effort that anglers put toward targeting Burbot please fill out one line of this sheet for each fish you catch for Burbot on the Kootenai River.  
Date: \_\_\_\_\_ Location: \_\_\_\_\_  
Did you fish from the shore or boat? Shore  Boat   
Did you fish in a lake or river? Lake  River   
Number of Burbot: \_\_\_\_\_  
Harvested: \_\_\_\_\_  
Released: \_\_\_\_\_  
Other species: \_\_\_\_\_  
Date: \_\_\_\_\_  
Species: \_\_\_\_\_  
Length: \_\_\_\_\_  
Collection Method: \_\_\_\_\_  
Date: \_\_\_\_\_  
Species: \_\_\_\_\_  
Length: \_\_\_\_\_  
Collection Method: \_\_\_\_\_  
Date: \_\_\_\_\_  
Species: \_\_\_\_\_  
Length: \_\_\_\_\_  
Collection Method: \_\_\_\_\_

**Angler Science Program**  
Kootenai River

**General Sample**  
Date: \_\_\_\_\_  
Species: \_\_\_\_\_  
Length: \_\_\_\_\_  
Collection Method: \_\_\_\_\_  
Date: \_\_\_\_\_  
Species: \_\_\_\_\_  
Length: \_\_\_\_\_  
Collection Method: \_\_\_\_\_



# Angler Science Program



# eDNA

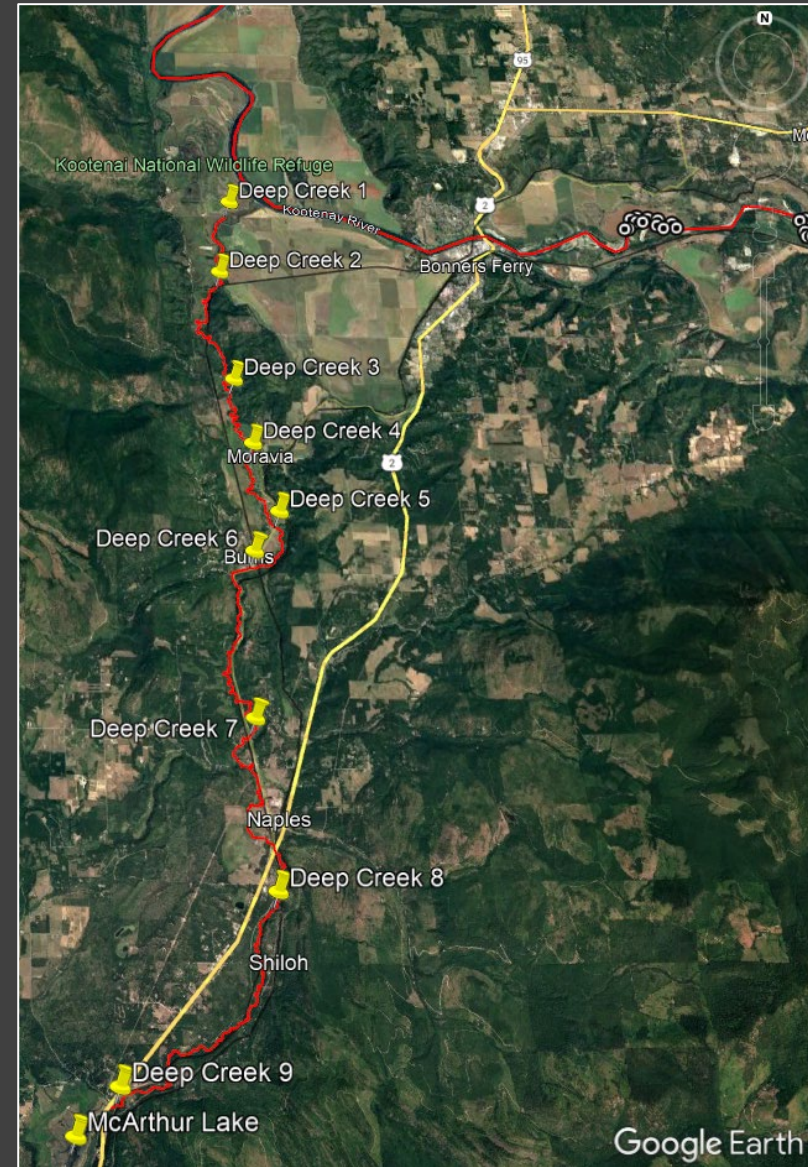
- 5 tributaries sampled in Idaho
- Pre-spawn and peak-spawn
- Similar to 2021
  - With the exception of Deep Creek





# eDNA

- Increased quantities of DNA suggest spawning activity

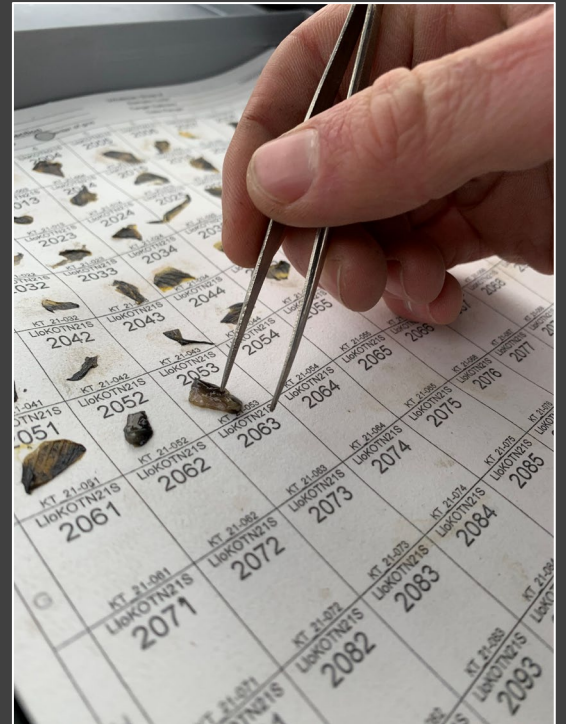


# eDNA

Site #	Feature Name	Date Collected	Burbot DNA Detected?	# Positive Wells (#/3)	Burbot eDNA Copies/L
01	Deep Creek	1/19/2022	Y	1	15
02	Deep Creek	1/19/2022	Y	2	69
03	Deep Creek	1/19/2022	Y	1	13
04	Deep Creek	1/19/2022	N	0	0
05	Deep Creek	1/19/2022	N	0	0
06	Deep Creek	1/19/2022	N	0	0
07	Deep Creek	1/19/2022	N	0	0
08	Deep Creek	1/19/2022	N	0	0
09	Deep Creek	1/19/2022	Y	3	127
01	Deep Creek	2/16/2022	Y	3	1,678
02	Deep Creek	2/16/2022	Y	3	249
03	Deep Creek	2/16/2022	Y	3	113
04	Deep Creek	2/16/2022	Y	3	119
05	Deep Creek	2/16/2022	Y	1	30
06	Deep Creek	2/16/2022	Y	3	136
07	Deep Creek	2/16/2022	Y	1	16
08	Deep Creek	2/16/2022	Y	3	1,684
09	Deep Creek	2/16/2022	Y	3	45,870
01	Deep Creek	2/23/2022	Y	3	225
02	Deep Creek	2/23/2022	Y	3	152
03	Deep Creek	2/23/2022	Y	3	50
04	Deep Creek	2/23/2022	Y	3	157
05	Deep Creek	2/23/2022	Y	2	40
06	Deep Creek	2/23/2022	Y	3	73
07	Deep Creek	2/23/2022	Y	1	15
08	Deep Creek	2/23/2022	Y	3	142
09	Deep Creek	2/23/2022	Y	3	10,270

# Deep Creek

- Tributary hoopnet sampling
- PIT tag arrays
- Fin clips



# Deep Creek

- Tributary hoopnet sampling
- PIT tag arrays
- Fin clips

