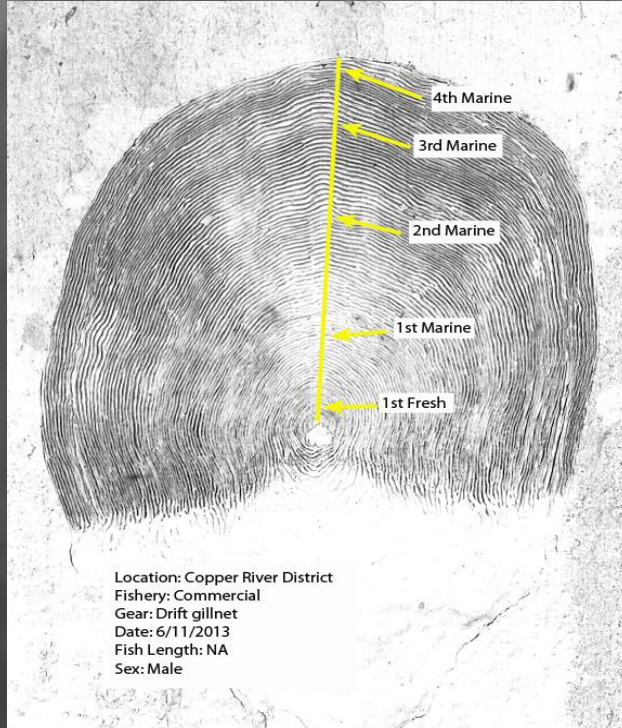


# Chinook Salmon Age Interpretation Summary for Copper River Stocks.

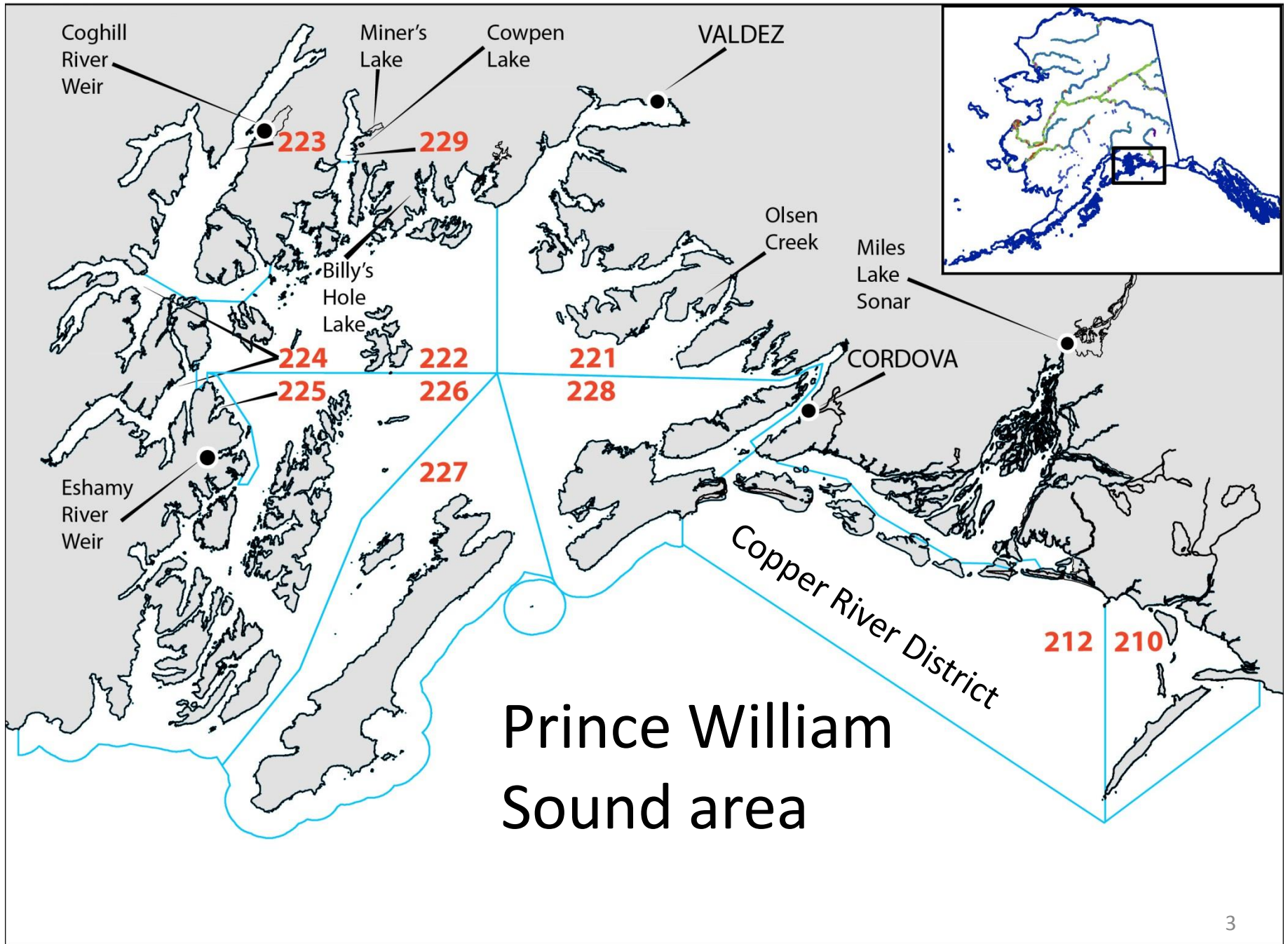


Steve Moffitt and Rich Brenner  
ADF&G Commercial Fisheries Division, Cordova.

Chinook Salmon Scale Aging Workshop, Juneau, Alaska; 2-3 April 2014

# Outline

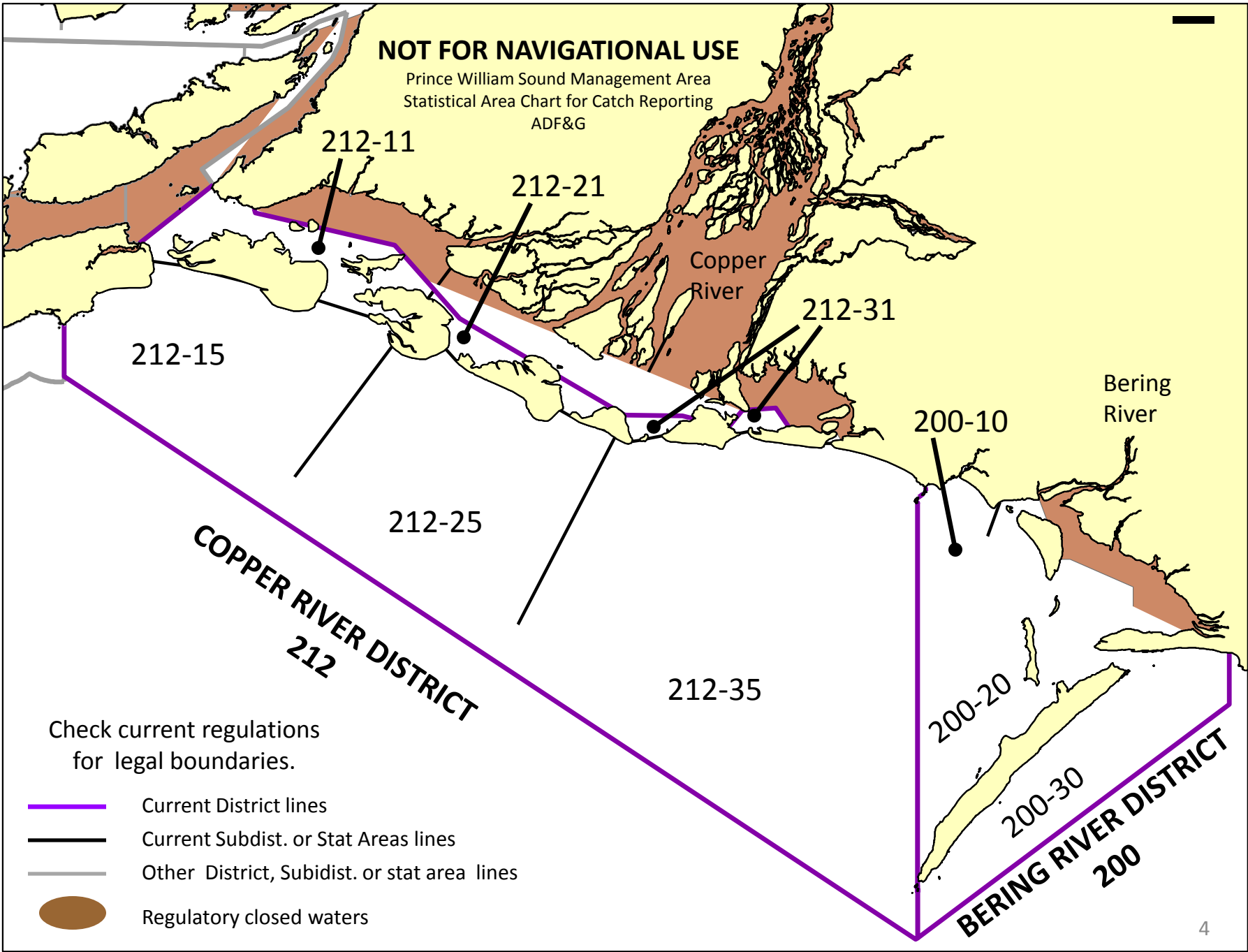
- Copper River Chinook background.
- Age reading materials and methods.
- Age training methods.
- Ensuring consistency among readers.
- Challenges to aging Chinook scales.



# Prince William Sound area

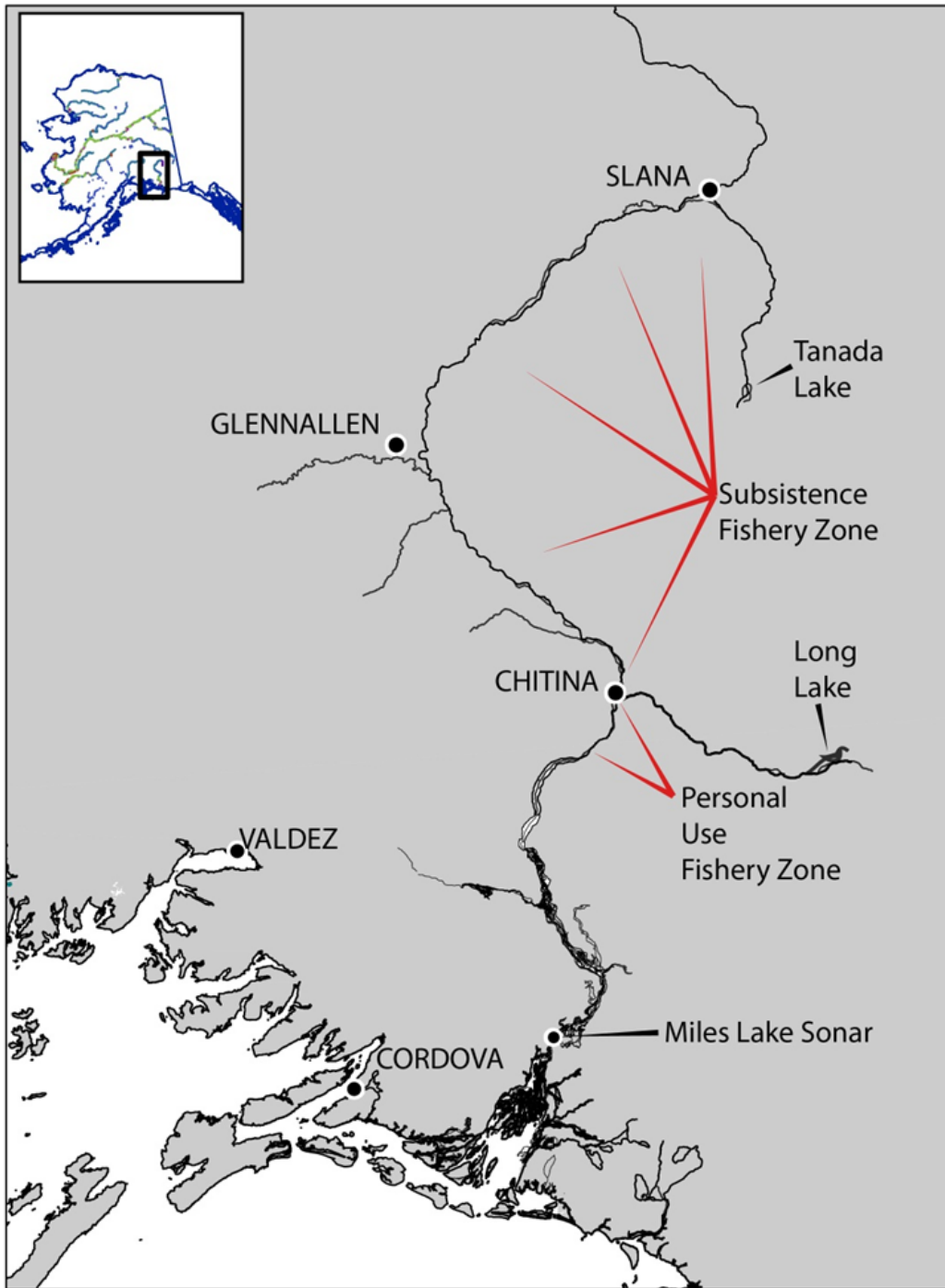
**NOT FOR NAVIGATIONAL USE**

Prince William Sound Management Area  
Statistical Area Chart for Catch Reporting  
ADF&G

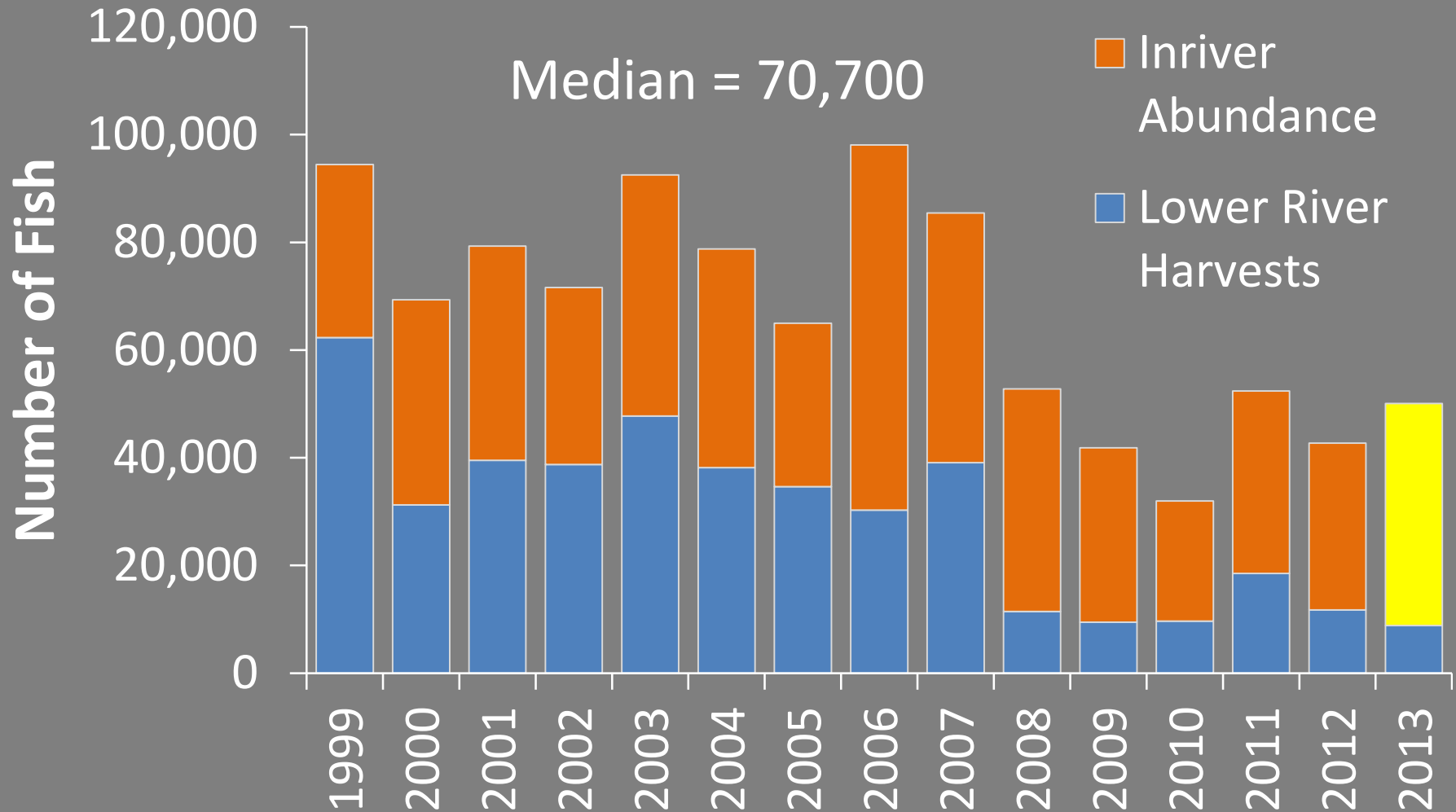


Check current regulations  
for legal boundaries.

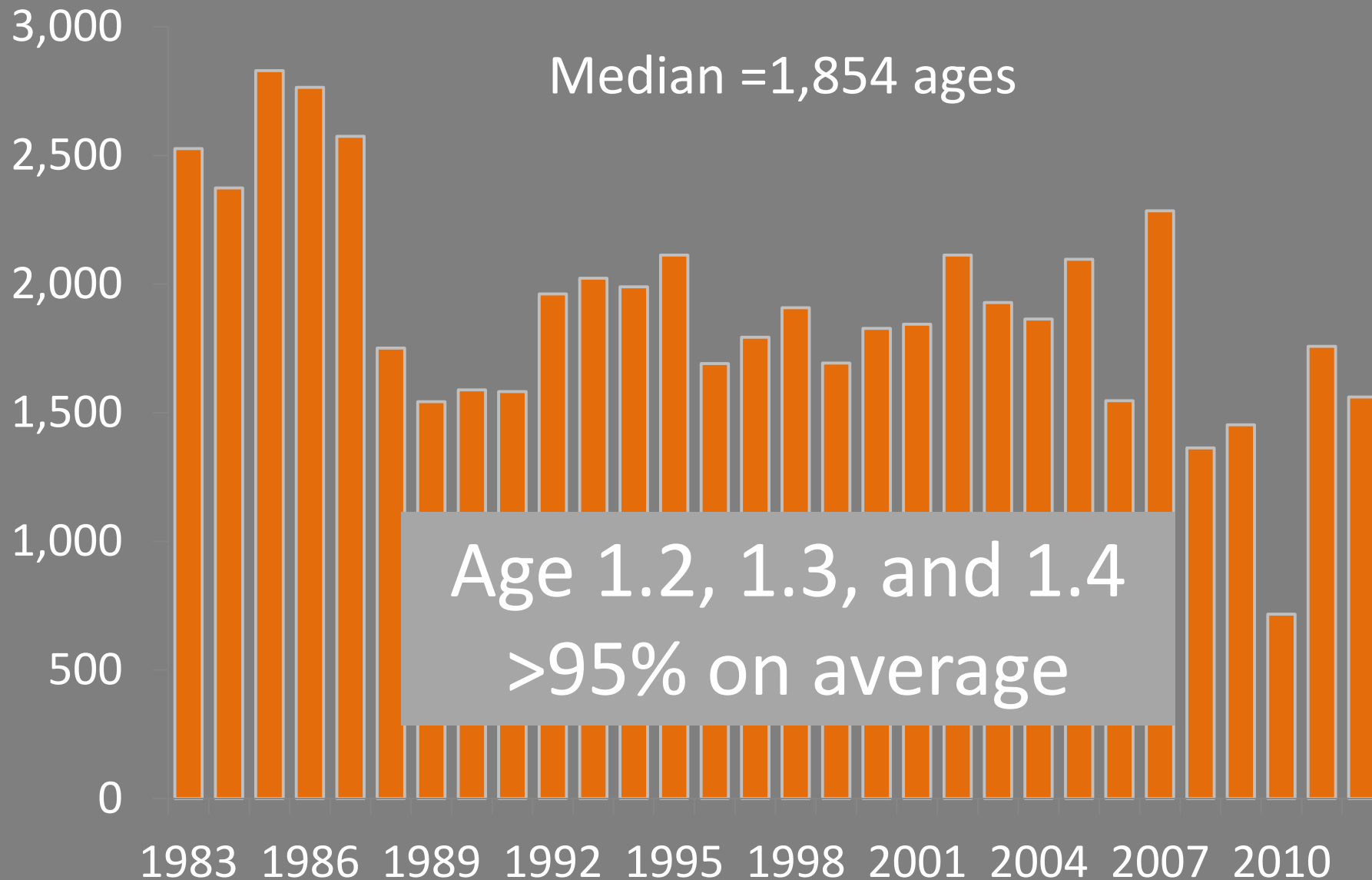
- Current District lines
- Current Subdist. or Stat Areas lines
- Other District, Subidist. or stat area lines
- Regulatory closed waters



# Chinook Salmon Total Run Copper River



# Chinook Salmon ages...Commercial



# Materials and Methods

## Scale collections

- Electronic Fish Measuring Boards
- Scale gum cards and card holders
- Forceps
- Headlamps

PG: #26-35 1-457-102  
Species: CRINOID Card No: 080  
Locality: CBR/COPPER R. DISTRICT  
COMMERCIAL CATCH  
Stat. Code: 212000000000  
Sampling Date: Mo. 6 Day 15 Year 13  
Gear: 03 - DRIFT GILLNET  
Collector(s): B-DL P-AK  
Remarks: PROCESSOR CRS  
TENDER Jac - ol-be  
#05 (0700 6/13 - 1900 6/14)

2

10	9	8	7	6	5	4	3	2	1
20	19	18	17	16	15	14	13	12	11
30	29	28	27	26	25	24	23	22	21
40	39	38	37	36	35	34	33	32	31

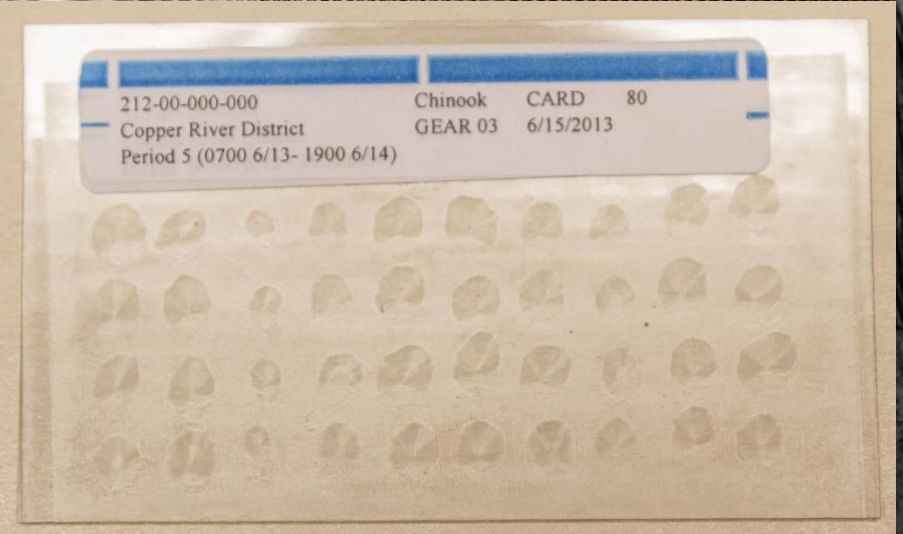
8



# Materials and Methods

## Age Materials

- Scale Preparation Equipment
- Scale press
- Precut acetates
- Preprinted labels



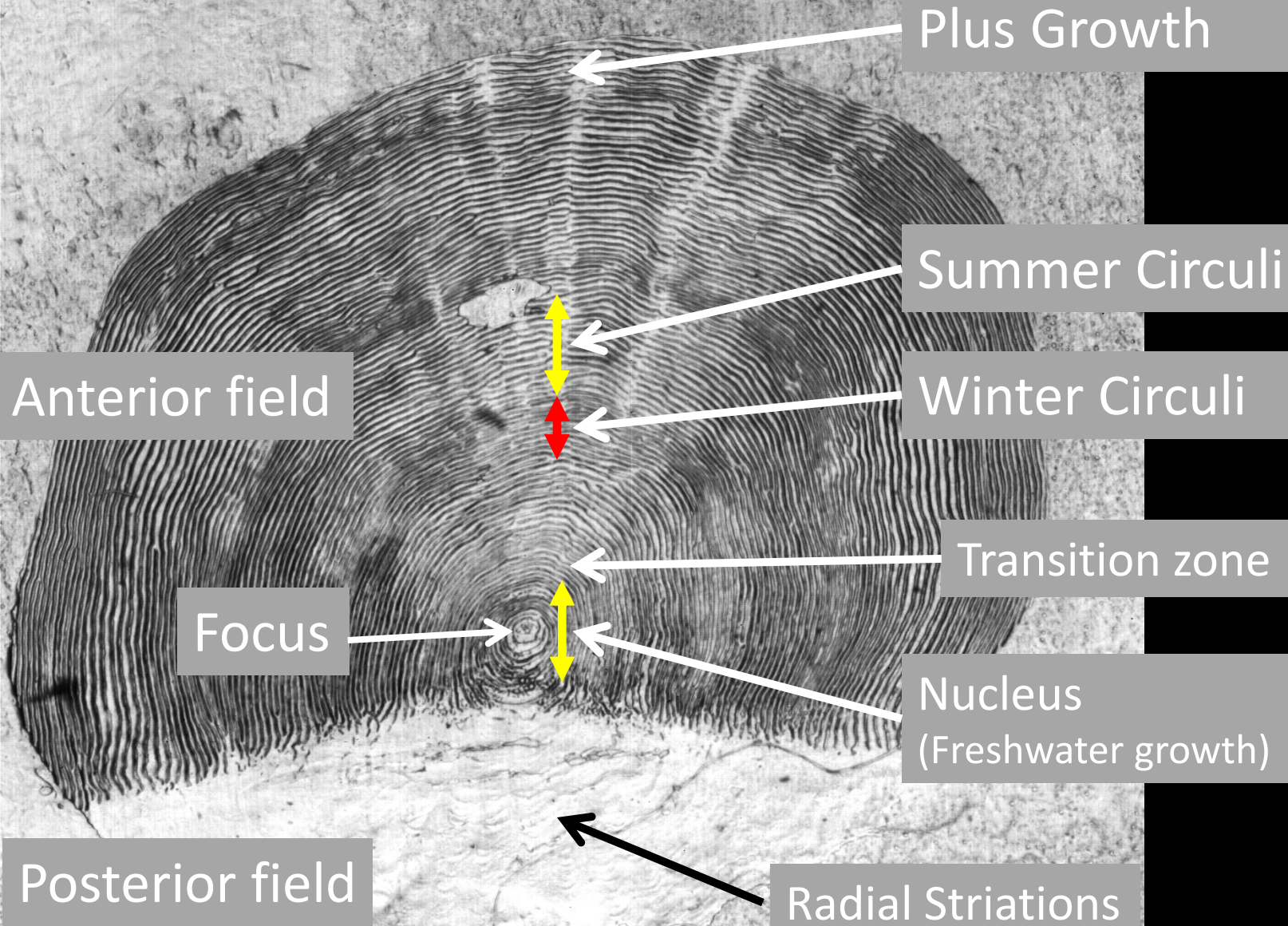
212-00-000-000 Chinook CARD 80  
Copper River District GEAR 03 6/15/2013  
Period 5 (0700 6/13- 1900 6/14)

The image shows a circular fish scale with a preprinted label and a grid of small circular scale samples. The label contains the following information: 212-00-000-000, Chinook, CARD, 80, Copper River District, GEAR 03, 6/15/2013, and Period 5 (0700 6/13- 1900 6/14). The scale samples are arranged in a grid of 4 rows and 10 columns.

# Materials and Methods

## Scale Reading

- Microfiche stations (2 for production)
- Scanning microfiche (imaging and measuring)
- Paper forms for age



Similar to Clutter and Whitesel (1956) and Yole (1989)

The background of the slide is a grayscale image of several fingerprints. The ridges and valleys are clearly visible, creating a complex, wavy pattern. The image is slightly blurred and has a grainy texture, typical of a scanned fingerprint.

# Materials and Methods

## Age Interpretation Training

- Read background materials- manual
- Practice reads with experienced staff
- Blind test agreement – among readers
- Assessment of precision- not accuracy

# Materials and Methods

## Age Interpretation Training

Read (and study) background materials

- Selected Literature.. Clutter and Whitesel (1956).
- Scale characteristics by species.
- Example scales by species.

# Example Contingency Table – between reader

Count of Fish		Reader A							Grand Total
Reader B		1.1	1.2	1.3	1.4	2.2	2.3	2.4	
1.1		2							2
1.2			18	5					23
1.3			1	49	4		1		55
1.4				2	15				17
2.2						1			1
2.3							1		1
2.4								1	1
<b>Grand Total</b>		<b>2</b>	<b>19</b>	<b>56</b>	<b>19</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>100</b>

# Materials and Methods

## Maintain Consistency

- Read with experienced readers.
- **Blind tests agreement – among readers.**
- Second reads by other readers.

# Challenges

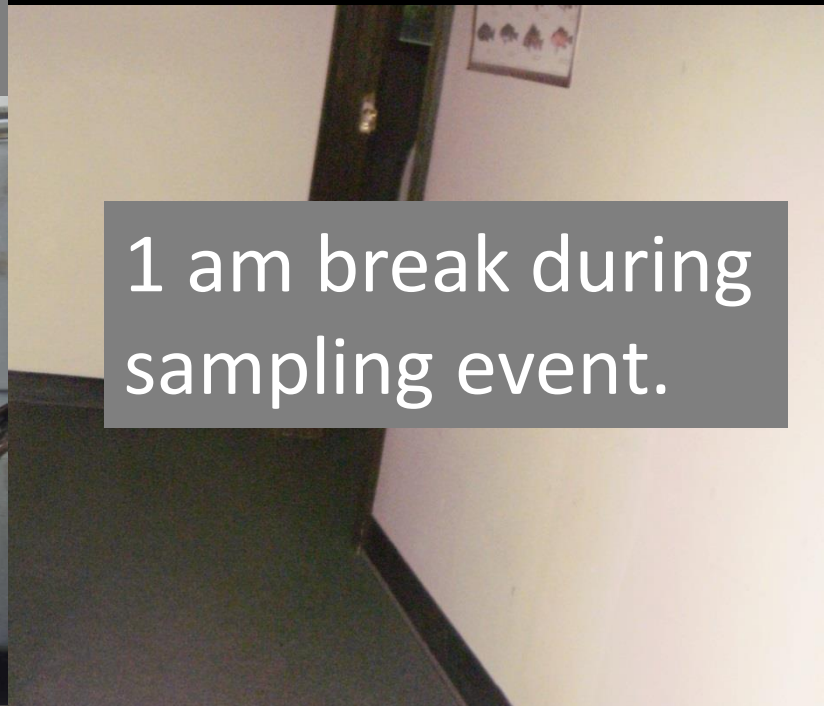
- No known age scales – Copper River.
  - **Chinook Initiative -CWT**
- Limited time for collections (individual strata and annually).
- Limited money and time for training, preseason testing, and consistency testing.



7 PM start of sampling event.



1 am break during sampling event.



Questions?

