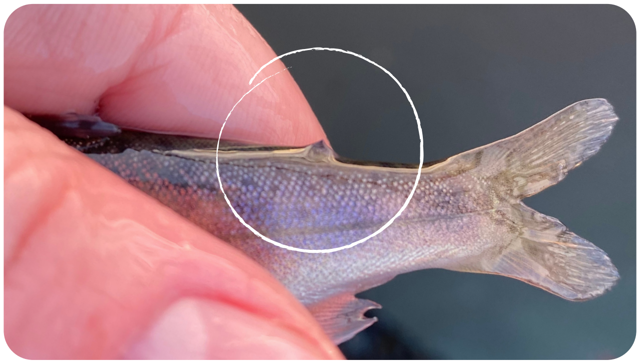
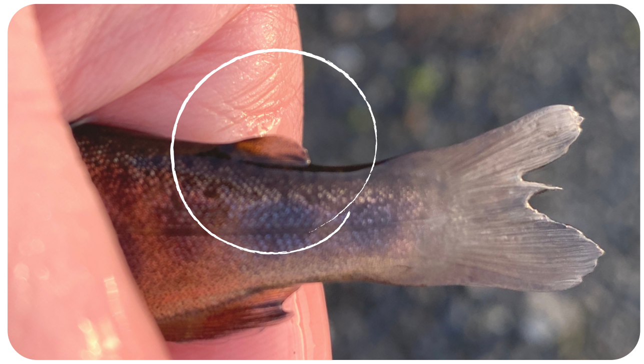
# SCIENCE BITE: SALMON TAGGING



**Clipped adipose fin**



**Unclipped adipose fin**

**Questions**

Haley wanted to keep track of Sandy and Paul's progress so she knows how long it will take them to complete the entire tagging process. She took some measurements and discovered that Sandy clips 140 fins in 10 minutes, and Paul clips 12 fins per minute.

1. What is Sandy's rate of clipping in fins per minute? Is she faster than Paul?

2. How long would it take Sandy to clip the fins of 3000 fry?
   How long would it take Paul?

Some of the coho fry do not retain their nose tag and need to go through the process again. Haley wants to know how effective her tagging machine is.

3. If she tags **100 fish** and **13** of them need to be re-tagged, what is the percentage of fish that need to be re-tagged?

   Let's make an estimate! Based on the percentage of 100 fish that do not retain their tags, how many fish of the total 200,000 coho fry will need to be retagged?

4. If she tags **230 fish** and **24** of them need to be re-tagged, what is the new percentage for this round?

   Let's think about this a bit more. Why would Haley want to find this percentage using 100 or 230 fish, rather than just 5 fish?

**Answer Key:**

1. What is Sandy's rate of clipping in fish per minute?
   rate = fins/minute
   Sandy's rate = 140 fins/10 minutes = **14 fins/min**
   Paul's rate is 12 fins/min, so Sandy is faster

2. How long would it take Sandy and Paul to each clip the fins of 3000 fry?

Sandy: $\frac{14 \text{ fins}}{1 \text{ minute}} = \frac{3000 \text{ fins}}{x \text{ minutes}}$

$14x = 3000$

**Sandy**

$x = \frac{3000}{14}$ = 214.3 minutes

Paul: $\frac{12 \text{ fins}}{1 \text{ minute}} = \frac{3000 \text{ fins}}{x \text{ minutes}}$

$12x = 3000$

**Paul**

$x = \frac{3000}{12}$ = 250 minutes

3. If Haley tags **100 fish** and **13** of them need to be re-tagged, what is the percentage of fish that need to be re-tagged?

$\frac{13}{100} = 0.13$ To make it a percent, multiply by 100: = (0.13)x(100) = **13%**

Let's make an estimate! Based on the percentage of 100 fish that do not retain their tags, how many fish of the total 200,000 coho fry will need to be retagged?

In other words: what is 13% of 200,000?

(200,000)x(0.13) = **26,000 coho fry**

4. If she tags 230 fish and 24 of them need to be re-tagged, what is the new percentage for this round?

$$\frac{24}{230} = 0.1043$$

To make it a percent, multiply by 100:

$$= (0.1043)\text{x}(100)$$
$$= \mathbf{10.43\%}$$

Let's think about this a bit more. Why would Haley want to find this percentage using 100 or 230 fish, rather than just 5 fish?

*If Haley had to calculate a percentage every 5 fish, she would be spending a lot of time making calculations, and then would have a lot of percentages to work with. By finding the percentage using larger groups of fry, Haley is reducing the amount of work for herself to find the average percentage at the end of all her rounds.*