

Name _____ Date _____

Fish Mark and Recapture Simulation

Trial 1. Have the trapper close his or her eyes and scoop a sample from the bowl. Have the marker write the letter M on all goldfish in the sample. Have the data recorder record the number of goldfish (M) and the number of bycatch caught. Return the fish back to the bowl and mix thoroughly.

Trial 2. Have the trapper collect a second, larger sample of fish. Have the marker write the letter C on all goldfish in the sample, and the letter R on the goldfish that were recaptured. Have the data recorder record the number of fish that were captured (C), the number of fish that were recaptured (R), and any bycatch. After you have completed both trials, write your calculations to estimate the size of the population.

Team Members

Marker: _____

Trapper: _____

Data Recorder: _____

Data					
Original Estimation	Trial 1		Trial 2		
How many fish do you think are in the population?	# Target Fish caught (marked M)	# Bycatch species caught	# Target Fish caught (marked C)	# Target Fish recaptured (marked R)	# Bycatch species caught

Fish Mark and Recapture Simulation, continued

Calculations		
Find	Formula	Result
Estimated Size of Target Species Population	<p>formula: $\frac{\# \text{ Target Fish caught in Trial 1 (marked M)} \times \# \text{ Target Fish caught in Trial 2 (marked C)}}{\text{Total \# Recaptured Fish (marked R)}}$</p> <p>calculation: _____ x _____</p>	
Percentage of Total Bycatch	<p>formula: $\frac{\text{Bycatch total 1} + \text{Bycatch total 2}}{\text{M} + \text{C} + \text{Bycatch total 1} + \text{Bycatch total 2}} = \frac{\text{Bycatch total}}{\text{Total number of organisms caught}} = \text{Bycatch ratio}$</p> <p>calculation: _____ + _____ + _____ = _____ = _____</p>	<p>Bycatch Ratio = _____</p> <p>X 100 = _____ %</p>
Actual # of Target Species	Count and record the actual number of Target Species in your sample.	