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PACIFIC SALMON - TABLE 1 - ANSWER KEY

HOW FAR DID THE FISH TRAVEL?

STRESSED FISH

FISH ID	LAST LOCATION DETECTED	TIME (DAYS)	DISTANCE (KM)
1	MISSION	7	40
3	VEDDER	6	75
5	VEDDER	8	75
7	VEDDER	10	75
9	TAMIHI	14	95
11	VEDDER	5	75
13	LOWER HATCHERY	15	110
15	CONFLUENCE	5	60
17	CONFLUENCE	5	60
19	VEDDER	10	75
21	MISSION	2	40
23	TAMIHI	8	95
25	MISSION	1	40
27	VEDDER	19	75
29	LOWER HATCHERY	31	110

NOT STRESSED FISH

FISH ID	LAST LOCATION DETECTED	TIME (DAYS)	DISTANCE (KM)
2	TAMIHI	12	95
4	TAMIHI	8	95
6	LOWER HATCHERY	35	110
8	LOWER HATCHERY	13	110
10	LOWER HATCHERY	25	110
12	TAMIHI	7	95
14	VEDDER	3	75
16	LOWER HATCHERY	26	110
18	TAMIHI	8	95
20	LOWER HATCHERY	17	110
22	TAMIHI	9	95
24	TAMIHI	29	95
26	TAMIHI	26	95
28	TAMIHI	7	95
30	TAMIHI	14	95

The table above is known as a raw data table. This means that the data has been collected, but it hasn't been organized in any meaningful way. On the next page, you will be organizing the data into a stem and leaf plot. This will allow us to start seeing patterns in the data. On the following page, you will create a scatter plot, which will allow us to see the patterns in a more visual way.

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PACIFIC SALMON - PART 1

CREATING STEM AND LEAF PLOTS

A Stem and Leaf Plot is a specific type of table, used to organize data. The first digit (or digits) of each piece of data is put in the 'stem' column, and the last digit of each score is listed in the 'leaf' column. The 'stem' creates a group of scores that all begin with the same first digit (or digits), while the leaf column shows each individual score.

For example, the stem and leaf plot to the right, shows the data from the following set:

92, 70, 100, 74, 98, 96, 75, 96

STEM	LEAF
7	0, 4, 5
8	
9	2, 6, 6, 8
10	0

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PACIFIC SALMON - TABLE 2 - ANSWER KEY

HOW FAR DID THE FISH TRAVEL?

STRESSED FISH

STEM	LEAF
0	
1	
2	
3	
4	0,0,0
5	
6	0,0
7	5,5,5,5,5,5
8	
9	5,5
10	
11	0,0

NOT STRESSED FISH

STEM	LEAF
0	
1	
2	
3	
4	
5	
6	
7	5
8	
9	5,5,5,5,5,5,5,5,5
10	
11	0,0,0,0,0

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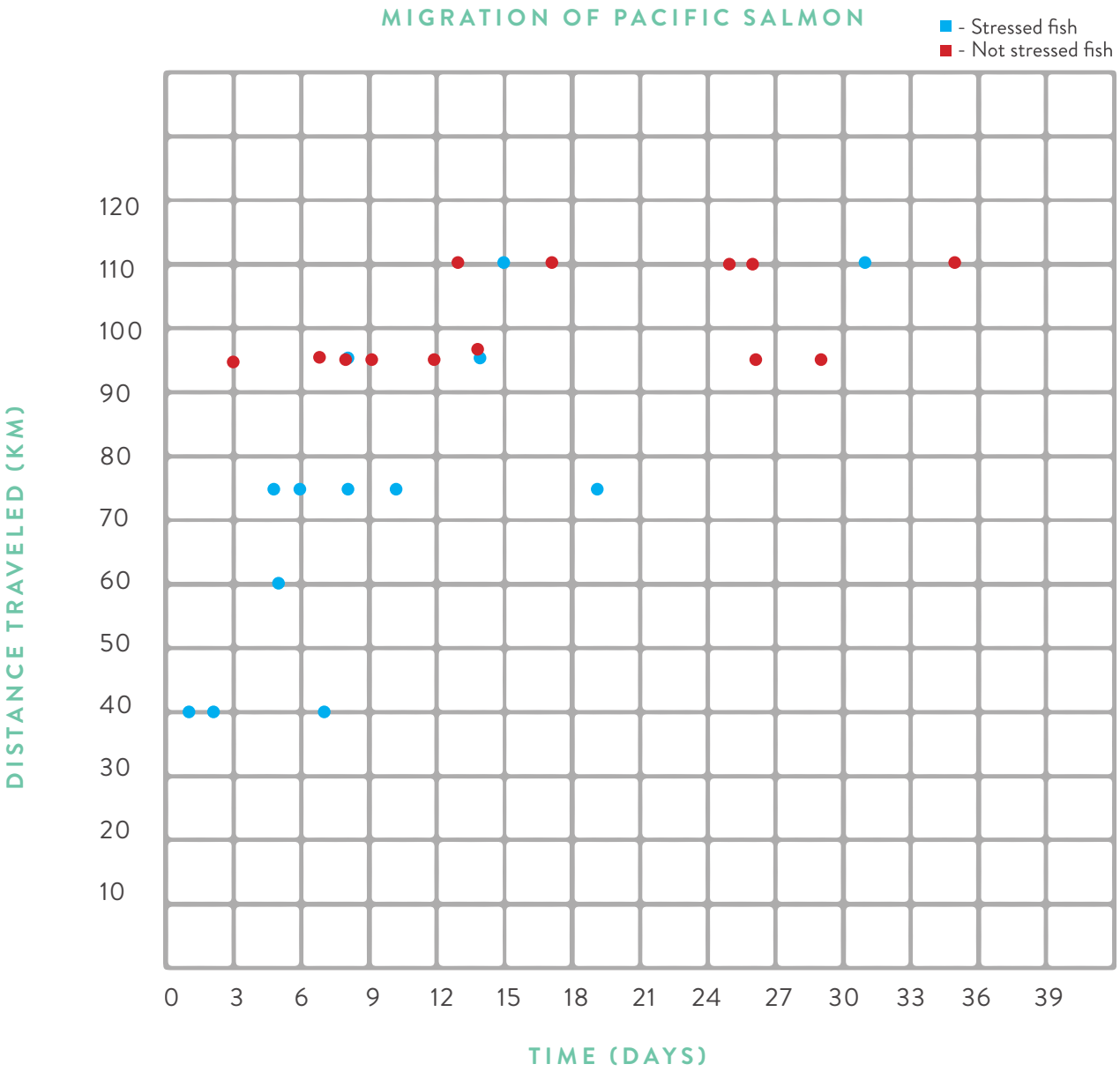
PACIFIC SALMON - PART 1 - ANSWER KEY

COMPARING TIME AND DISTANCE

Create a scatter plot using the grid below, to compare the time and distance travelled by each fish. Use a different colour to represent stressed and not stressed fish.

Use the following criteria:

- ☒ Each axis is labelled
- ☒ Each point is plotted accurately
- ☒ Scales are appropriate
- ☒ There is a descriptive title
- ☒ There is a key to identify each group of fish



PACIFIC SALMON - PART 1 - ANSWER KEY

DRAWING CONCLUSIONS FROM THE DATA: MEDIAN AND MEAN

Calculating the Median:

Median - the middle number of a set of numbers that are arranged in order from least to greatest.

Note: If you have an even number of numbers, then find the median by adding together the two middle numbers, and dividing by two.

Ex. 12, 16, 17, 23, 28, 36

17 + 23 = 40 40 ÷ 2 = 20 Median: 20

Find the median total distance travelled for each data set, by writing out each set of numbers, and then finding the middle number.

Stressed:

40, 40, 40, 60, 60, 75, 75, **75**, 75, 75, 75, 95, 95, 110, 110

Median distance travelled by stressed fish: 75 km

Not Stressed:

75, 95, 95, 95, 95, 95, 95, **95**, 95, 95, 110, 110, 110, 110, 110

Median distance travelled by stressed fish: 95 km

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PACIFIC SALMON - PART 1 - ANSWER KEY

DRAWING CONCLUSIONS FROM THE DATA: MEDIAN AND MEAN

Calculating the Mean:

Mean - (the average) mean is calculated by adding together all of the numbers in a data set, and dividing by the total number of numbers

Ex. 12, 16, 17, 23, 28, 36

12 + 16 + 17 + 23 + 28 + 36 = 132 132 ÷ 6 = 22 Mean: 22

Find the mean total distance travelled for each data set.

Stressed:

40 + 40 + 40 + 60 + 60 + 75 + 75 + 75 + 75 + 75 + 75 + 95 + 95 + 110 + 110 = 1 100

1 100 ÷ 15 = 73.33

Median distance travelled by stressed fish: 73.33 km

Not Stressed:

75 + 95 + 95 + 95 + 95 + 95 + 95 + 95 + 95 + 95 + 110 + 110 + 110 + 110 + 110 = 1 480

1 4 80 ÷ 15 = 98. 67

Median distance travelled by stressed fish: 98.67 km

PART 1: DATA ORGANIZATION - ANSWER KEY

EXIT CARD

WHAT DID BIOLOGISTS LEARN FROM THIS STUDY?

Answers will vary. Some sample responses may include:

Bycatch practices from gillnet fishing seem to create stress for the fish that are returned to the water
On average, not stressed fish travelled further than stressed fish
More not stressed fish made it to the spawning grounds, than stressed fish
There seems to be a connection between bycatch, and fewer stressed fish making it to spawn

WHAT QUESTIONS MIGHT BIOLOGISTS ASK NOW, TO FURTHER THEIR RESEARCH?

Answers will vary. Some sample responses may include:

Are there other factors that are affecting whether or not a fish makes it to spawn?
What has happened to the fish that don't make it to spawn?
Not all of the not stressed fish made it to spawn. Why didn't some of those fish make it?
What other conservation strategies could be used, instead of bycatch?