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**The Case of the Disappearing Blue Crab**

*What is killing the MD Blue Crab*

Part 1: Read each statement and decide if it is (T)rue or (F)alse in the Before column.

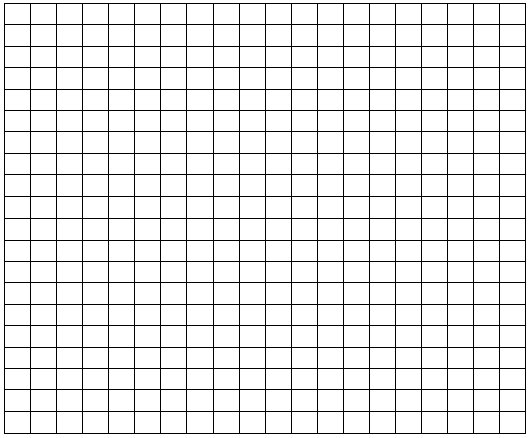
|  |  |  |
| --- | --- | --- |
| **Before** | **Statement** | **After** |
|  | 1. Crabs only walk from side to side. |  |
|  | 2. People who study crabs are carcinologists. |  |
|  | 3. Females travel up to 124 miles to release their eggs. |  |
|  | 5 Crabs are cannibals. |  |
|  | 7. Hematodinium is a parasite that when in the right conditions can kill 90% of infected crabs. |  |
|  | 8. $125 million a year is earned from the crabbing industry in MD & VA alone. |  |
|  | 9. Blue crabs play a significant role in the control of benthic populations. |  |

**Part 2: Crab population over time graphic exercise**

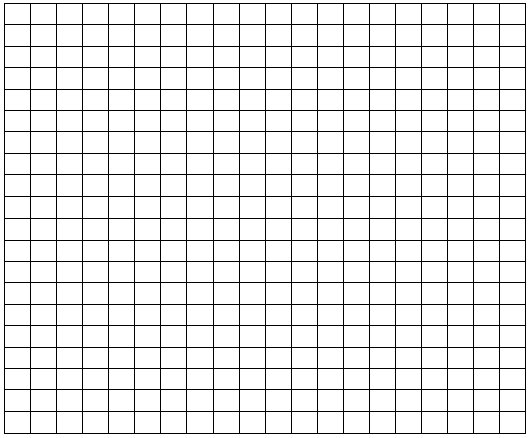
Use the data sets to create four graphs. Use your graphs to answer the questions at the end.

Data Set 1:

|  |  |
| --- | --- |
| **year** | **MD Blue Crab harvest (millions of pounds)** |
| 1945 | 52 |
| 1955 | 45 |
| 1965 | 60 |
| 1975 | 48 |
| 1985 | 60 |
| 1992 | 30 |
| 1995 | 40 |
| 2000 | 18 |
| 2001 | 20 |
| 2002 | 21 |
| 2003 | 22 |
| 2004 | 29 |
| 2005 | 26 |
| 2006 | 25 |
| 2007 | 21 |

**

1. In this graph, what is the dependent variable?
2. What is the independent variable?
3. All the data in this graph was collected during the month of October. Why might it be important to compare data collected at the same time of the year?
4. What is the trend in blue crab harvest over the 60 years represented by this data?

Data Set 2:

Graph Key

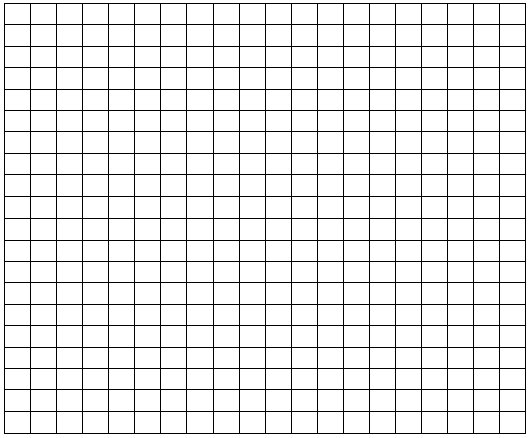
* Prevalance
* Water Temp
* Salinity

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Hematodinium Prevalence** | **Avg. Water Temp** | **Salinity** |
| Aug-1992 | 44 | 23 | 22 |
| Nov-1992 | 59 | 10 | 24 |
| Dec-1992 | 37 | 7 | 24 |
| Jan-1993 | 16 | 4 | 22 |
| Sep-1993 | 83 | 23 | 30 |

1. What is the dependent variable for this data set?
2. What is the independent variable?
3. Do you see any connection between the parasite Hematodinium and:
   1. Water temperature?
   2. Water salinity?
   3. Time of year?

Data Set 3:

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Hematodinium Outbreak–**  **% Prevalence** | **Avg Water Temp** | **Total Precipitation** |
| Oct-92 | 90 | 55.6 | 49.29 |
| Oct-93 | 85 | 56.8 | 42.23 |
| Oct-94 | 89 | 57.2 | 53.07 |
| Oct-95 | 90 | 56.9 | 39.66 |
| Oct-96 | 55 | 55.4 | 58.15 |
| Oct-97 | 85 | - | - |

**

1. What is the dependent variable for this data set?
2. What is the independent variable?
3. Is there a connection between Hematodinium prevalence and the total precipitation for the year?
4. Is there a connection between Hematodinium outbreaks and poor crab harvests?
5. How could you prove whether the parasite is causing the crab population to decline?

*Questions to consider:*

1. What is the trend in blue crab harvests over the last 60 years?
2. Do you think there is a connection between blue crab harvests and blue crab population size?
3. Is there a correlation between the prevalence of the parasite Hematodinium and (a) water temperature, (b) water salinity, (c) time of year?
4. Is there a correlation between the prevalence of the parasite Hematodinium and (a) the average temperature of the water, (b) the total precipitation?
5. Is there a correlation between Hematodinium outbreaks and poor crab harvests?