



# Modeling Marine Ecosystems with Virtual Reality: Observations & Models Module Worksheet #1

## Estimated Temperature (inland and coastal)

Record your estimates for the temperature in Middleton in the table below.

Town	Temperature	
	Inland	Coastal
Coolville	10° C (50° F)	10° C (50° F)
Middleton		
Warmville	20° C (68° F)	20° C (68° F)



# Modeling Marine Ecosystems with Virtual Reality: Observations & Models Worksheet #2

## Hawaiian Buoy Temperature Model

Estimate the temperature at the buoy between Kaua'i and Oahu at different times using your simple model. Record your estimates in the "Model" column in the table below.

Time	Temperature (° C)		
	Kaua'i	Model	Oahu
3 AM	17		21
6 AM	18		22
9 AM	20		24
Noon	23		27
3 PM	25		29
6 PM	22		26
9 PM	20		24
Midnight	18		22



# Modeling Marine Ecosystems with Virtual Reality: Observations & Models Worksheet #3

## Hawaiian Buoy Temperature Data

Record your temperature estimates in the table below. How do they compare with actual readings from the buoy, which are listed in the "Buoy" column.

Time	Temperature (° C)			
	Kaua'i	Model	Buoy	Oahu
3 AM	17		18	21
6 AM	18		19	22
9 AM	20		20	24
Noon	23		21	27
3 PM	25		22	29
6 PM	22		22	26
9 PM	20		21	24
Midnight	18		19	22



# Modeling Marine Ecosystems with Virtual Reality: Observations & Models Worksheet #4

## Strawberry Count Sampling

	# of strawberries
Sample 1	15
Sample 2	25
Sample 3	20

The table shows the number of strawberries counted in 3 of the 50 quadrats, each 1 meter square, in your garden. What is the average number of strawberries per square meter in these quadrats?

\_\_\_\_\_ strawberries per square meter

Your garden is 5 meters wide and 10 meters long. What is the total area of your garden?

Garden area = \_\_\_\_\_ square meters

What is your estimate for the total number of strawberries in your garden?

Total strawberries estimate = \_\_\_\_\_

The recipe for strawberry pies says that you need 500 strawberries. Will you have enough strawberries for your pies?

\_\_\_\_\_



# Modeling Marine Ecosystems with Virtual Reality: Observations & Models Worksheet #5

## Model Validation: Lobster Biomass

Record data about lobster biomass in the Gulf of Maine in the table below. Record values for 1970 and 2002 from the model-based dataset (MarineProtectedAreas) and from the observational dataset (NEFSCsurveytrawlandMammalBird).

Year	Lobster Biomass (metric tons)	
	NEFSCsurveytrawl- andMammalBird	MarineProtectedAreas
1970		
2002		

### Virtual “Dive” Location:

- Northeast region
- Gulf of Maine
- Sand flats habitat
- Use the **NEFSCsurveytrawlandMammalBird** and the **MarineProtectedAreas** scenario datasets.
- To switch to the **NEFSCsurveytrawlandMammalBird** or the **MarineProtectedAreas** scenario from the Baseline scenario (which loads by default), click the green “SCN” (scenario) folder icon in the upper left in VES-V.